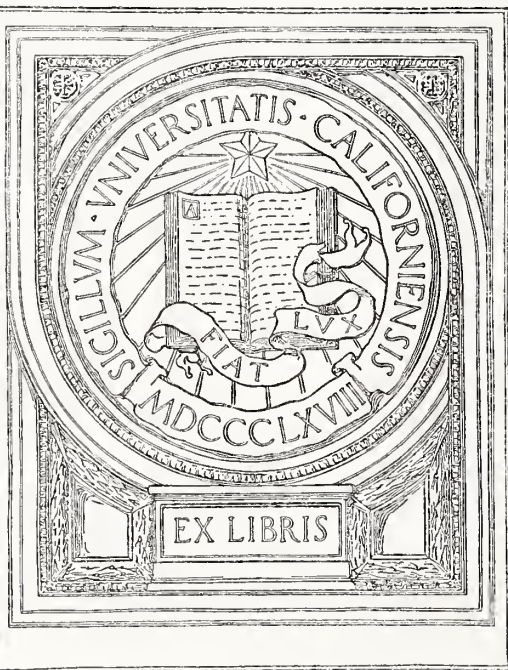
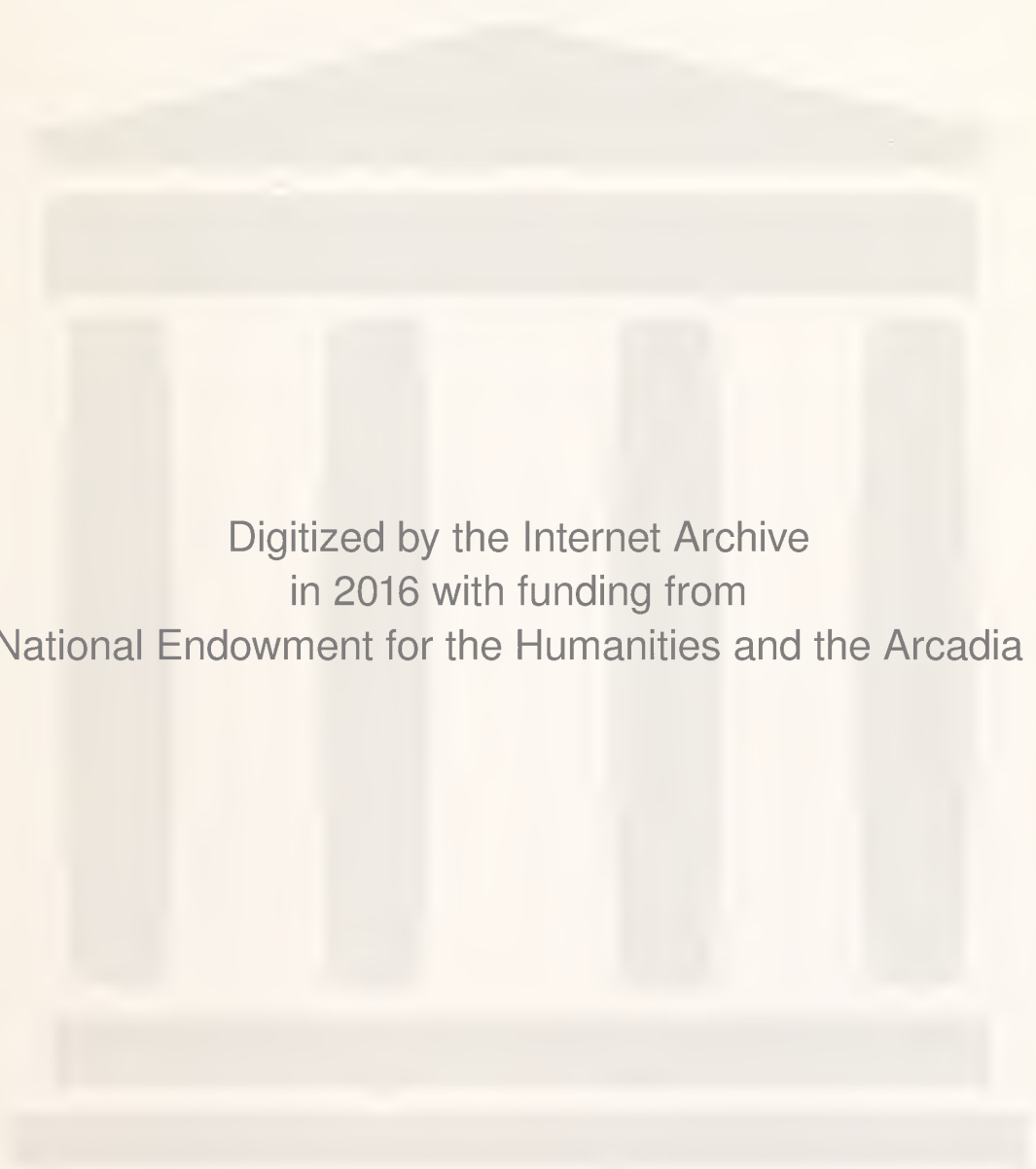


MEDICAL SCHOOL
LIBRARY



EX LIBRIS



Digitized by the Internet Archive
in 2016 with funding from
The National Endowment for the Humanities and the Arcadia Fund



THE
END OF THE
WORLD



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, January, 1951

No. 1

NOTES ON THE ARTIFICIAL FEEDING OF INFANTS

GEORGE E. DASH, M. D., St. Andrews Hospital

Looking back over a period of years in pediatric practice, one wonders if our interest in, and our knowledge of practical artificial feeding of infants has not slipped noticeably. Babies are born just as they were years ago, their physical makeup is just the same, their nutritional needs have not changed in the least, yet, we have been seemingly less interested in accurate rules, axioms, and practices of good feeding procedures. We have left much to the proprietary food manufacturers, depending on tables, charts and ingenious slide rule devices put out by them. We do not examine the stools as carefully as we did in the past, nor is our check back on the earlier feeding history as thorough as formerly. All of this in face of the fact that breast feeding is rapidly becoming a thing of the past and the need for good artificial feeding more necessary than ever before.

The first essential, naturally, is a careful, painstaking history, then the thorough physical examination, thinking of those organic factors which would have a bearing on the feeding: pyloric stenosis, pylorospasm, congenital anomalies of the digestive tract, cleft palate, adhesions anywhere in the tract, celiac disease, megacolon, etc. One must realize that the hyperkinetic baby will have colic; that a congenital heart can be a major factor; that a hypertrophied thymus will produce hiccough and maybe a factor in projectile vomiting.

As in the past, excluding allergies in which we must use a hypoallergic, or non allergic milk, cow milk diluted and modified in some way, is still the basis

from which we start. Looking back one recalls how it was early felt that the curd, the coagulable protein of cow's milk, with its higher percentage and tougher curd as compared to breast milk was the offending factor in producing the varied feeding disturbances. It is interesting to recall the classic experiment of Finkelstein, now hardly mentioned in textbooks, by which he proved these theories to be false. He separated cows milk and breast milk into the curd and whey, mixed the curd of cows milk with breast milk whey, and the curd of breast milk with cows milk whey. The group of infants fed on the second mixture showed all the same group of untoward effects that were seen on those fed on the unaltered cows' milk, while those fed on the first mixture did well; there was something, either the sugar or the salts in cows' milk whey that was the offender, the proteid was relatively harmless. From this he evolved the formula for proteid milk, long an important food for difficult feeders; in those cases in which carbohydrate is not well tolerated we can temporarily push the proteid higher with this food; in underfed babies, we can push the caloric intake far higher with it than with any other food. It well deserves a further study and a revival of its use. We can recall the many brilliant suggestions and methods of modifying this curd, cereal water diluents, boiling, even the use of citrates to prevent curd formation, but the experiment noted above proved all these to be unnecessary. The dilution of cows' milk and the addition of some form of carbohydrate other than lactose, in most

cases takes care of the untoward action of the whey.

The basic rules are just the same today as in the past: total fluid requirements 3 oz. per pound per day: calories are still easy to figure and are most important if we are to be thorough, 40 to 65 per pound per day depending on the nutritional status of the baby.

Something like forty-five years ago, Finkelstein classified and co-ordinated several types of digestive and nutritional conditions: this too has been omitted from current literature on infant feeding, but will bear reexamination and restudy. His classification was as follows:: *Weight disturbance*. This is the typical fat baby. Instead of the normal five to eight ounce gain per week, his is in excess, often reaching sixteen per week, and even over. There is a tendency to vomiting without organic cause, constipation with hard, dry, so-called dog stools, which may tear the mucous membrane of the anus and produce blood streaked stools, ammoniacal urine is very pronounced, and there is a marked tendency to skin disorders, the seborrheas, eczemas and intertrigos. This type of baby is also more prone to the development of a later rickets. This is a chronic fat disturbance, requires a very low caloric intake, often not more than thirty-five per pound per day, a lowering of the fat intake, and raising of the carbohydrate, and/or the addition of some chemical agent to assist the fat digestion, for example the potassium bicarbonate in dextri-maltose # 3.

His second group he called *dyspepsia*, an old word, but which still has its full meaning. This dyspepsia can apply to any element of the food, either alone or combined.

Proteid disturbance is characterized by vomiting of an alkaline curd—the stools are diarrhoeal, gray to white in color, and have a characteristic musty, mouldy odor, and are alkaline. The treatment is naturally directed to the proteid, reduce it by further dilution, adding cereal waters, boiling, etc., or change to a milk that does not contain cows' milk proteid, for example the soy bean group. These cases are not frequently seen; they are usually a type of allergy for as stated above, the proteid produces few unfavorable reactions.

Carbohydrate dyspepsia: The keynote in this group is fermentation and the formation of gas, and with it, colic. The diarrhea is marked, stools are green, very frequent, sour smelling, excoriating and produce intertrigo of the diaper region; distension is characteristic; there is seldom vomiting, if so it is caused by back pressure from the distension not from direct effects on the stomach itself. Treatment is to lessen and/or change the carbohydrate and it is here that the balancing action of the proteid is most evident, here where we can use proteid milk to good advantage,

and where it has most often proved its value. In changing the carbohydrate we recall the sugars vary greatly in their fermentability, sacchrose being most fermentable, malt preparations next, and the corn syrups the least. Eliminate the carbohydrate entirely, and gradually — restore it as tolerance becomes re-established. Please note the word gradually — this gradual stepping up of a formula in contrast to a sudden change is one of the essential points in successful feeding.

Fat dyspepsia: This is acute, not chronic, as in the case of weight disturbance noted above. We see these cases where there has been a sudden change in the character or contents of the milk fat; for example where an infant has been on a milk with a lower fat content and is suddenly shifted to a richer milk such as Jersey; also in frozen milk the covering of the fat globules break, the oil runs together in large globules and digestion is difficult. Symptoms: vomiting—the old axiom, fat retards the emptying time of the stomach — diarrhoea with characteristic stools, acid from the various fatty acids, and have the odor of rancid butter. Treatment is obvious, remove all fat until the symptoms abate, then gradually restore.

His third group he called *decomposition*; other terms have been used, marasmus, malnutrition, etc., but in the final analysis, decomposition is the word. The digestion and nutrition fail to balance, and the baby literally decomposes — in an effort to sustain life, failing to get satisfactory nutrition from the digestive tract, it is taken from the body tissues, first the fats, then the muscle structure. Remember that the fat pad in the cheek is always the last fat to be absorbed and when that is gone, we have a very sick baby. The tolerance in these cases is so low, that often we find "the more food the less gain" and before the days of transfusion and intravenous fluids it was a real art to balance the feeding and the tolerance, as even a slight step of overfeeding was followed by loss of weight and further decomposition. His last classification he called *intoxication*, this has changed so much with our later knowledge of the infective diarrhoeas and was in all probability, what we call acidosis today. It is simply mentioned in passing, as it is definitely outdated.

Several times above we have mentioned the word *tolerance*. At about the same time Finkelstein was doing his work, Von Pirquet, whose name we associate more often with tuberculin tests than with infant feeding, taught and wrote of tolerance, and his writings were and still are the essence of successful feeding. He showed that infants have varied tolerances and that these tolerances vary with both internal and external conditions. Some babies have a higher tolerance for certain elements than others, and the opposite is also true, it is our job to recognize and treat these low tolerances. He showed that toler-

ance varies much, it varies with the weather, lower in hot, higher in cold; infections lower this tolerance and we have to be careful of our feeding during these infections; it can be definitely lowered by over feeding, that is why it is essential to check our calories, why so often we see as stated above, the more food, the less gain. We can smother our furnace fires with too much coal, an auto will not run efficiently on too rich a mixture in the carburettor.

The basic rules are still simple; we must not forget that our baby needs lots of water, 3 oz. per pound per day as stated. Cows' milk of good quality with a reasonably low, small globule type fat content, diluted equal parts with water early, later, two parts milk to one of water; figure $1\frac{1}{2}$ to 2 oz. milk per pound per day. It has been found that raw cows' milk, that is not mechanically modified, does not do so well up to about the third month, when a more nearly normal amount of HCl is present in the infant's stomach. Evaporated milk is a far better food up to this time, and can really be continued indefinitely as there is some mechanical modification of both the proteid and the fat that renders it more easy of digestion. Use one ounce per pound per day, with two ounces of water per pound per day. Any of the carbohydrates on the market are good, and may have to be tried out checking the babies' tolerance, for efficiency and economy, the dark corn syrups seem to answer in most cases. Calories are easily checked, 1 oz. of cows' milk gives 20 calories roughly, 1 oz. evaporated milk gives 40 — Karo is about 140, the other carbohydrates around 120. It takes such a short time to get into the habit of figuring these and the total formula compared to the babies' nutritional requirements.

Feeding intervals vary with the pediatrician, our

personal preference is a four-hour schedule, the first week or ten days, then back to three until the baby weighs twelve to thirteen pounds, or until he lengthens the schedule of his own accord, at which time, the cereals and pureed vegetables can be started. The flow of milk through the nipple should be checked, a drop per second, the feeding time should be fifteen to twenty minutes, and the baby held in the same position as if being nursed at the breast.

In recapitulation: vomiting, check for pylorospasm or pyloria stenosis, and other non-feeding causes. If alkaline with typical stools, proteid, with rancid butyric acid odor stools, fat. Persistent hic-cough calls for atropine, as does pylorospasm. Also, remember that there is a nervous disorder called rumination, which may baffle us for a while. Thick feedings are often retained better than the thin in many persistent vomiters. *Diarrhoea* almost always had a carbohydrate cause: reduce this and feed a higher proteid until tolerance is re-established. For colic atropin is still efficient, particularly when combined with small doses of Phenobarbital, which is definitely synergistic. The old carminatives, catnip and fennel are still valuable, though old-fashioned, and make an excellent vehicle for the atropine. The old caramelised flour of our grandmothers, and also the old flour ball, may help out in some otherwise stubborn case. *Constipation*: always check the anus for mild stricture. Ordinarily, increasing the carbohydrate is all that is required, sometimes as in cases of weight disturbance, lowering the fat. The old malt soup preparations were specific for many cases.

In conclusion, we have attempted to revive some of the old rules and axioms for artificial feeding that have worked well in the past and are still applicable.

DIVERTICULITIS WITH ACUTE LARGE BOWEL OBSTRUCTION

PHILIP O. GREGORY, M. D., F. A. C. S., St. Andrews Hospital

The presence of uncomplicated diverticula is referred to as diverticulosis. When these diverticula become inflamed, the term diverticulitis is used. "It is generally agreed that diverticulitis should be managed medically in most cases, but it is now equally well established that surgical procedures should be undertaken for the successful management of the complications of diverticulitis, such as obstruction, fistulas or abscesses and for the not infrequent inability to differentiate between diverticulitis and carcinoma."

Pathology: Smithwick says that diverticulitis occurs most frequently in the sigmoid because of the narrow lumen, stasis and the presence of solid fecal

matter in this portion of the large bowel. Maingot says, "Diverticula are most commonly found in the sigmoid colon. The blood vessels enter this segment of the gut at two situations: (1) at the line of attachment of the mesocolon to the bowel wall; and (2) between the site of the mesocolic attachment and the lateral taenae coli. Protrusions of the mucus membrane do not occur along the line of the mesocolic attachment because the blood vessels entering the gut in this position have to pierce the strong posterior longitudinal band which prevents herniation. Diverticula occur at the weakest point in the bowel wall, i.e., along the second line of entering blood vessels."

During the past year we have had three cases of

intestinal obstruction due to diverticulitis. The diverticulitis was located in the sigmoid in all these cases. Obstruction was the main symptom. Dehydration was the second problem.

When diverticulitis is associated with acute obstructive symptoms, it is often impossible to make a correct diagnosis either from a roentgenologic standpoint as it is in fact during exploratory laparotomy to distinguish it from carcinoma. However, the X-ray evidence in these three cases afforded strong evidence of diverticulitis, preoperatively, because we found evidence of diverticula elsewhere in the colon and in relation to the obstruction. X-ray men tell us that in diverticulitis the segment of constricted bowel is long, the constriction begins and ends gradually and there is usually no ulceration of the mucus membrane. In carcinoma, the segment of constricted bowel is short, the constriction begins and ends abruptly and the mucus membrane is nearly always ulcerated. It follows that when obstruction becomes complete, it is sometimes impossible to determine the precise nature of the lesion. Proctoscopic examination in our cases revealed no evidence of disease.

W. J. Mayo, Wilson and Griffin were the first to describe the details of operative treatment of diverticulitis. In 1907, they reported five cases in which a portion of sigmoid colon was resected for this disease.

None of the cases reported here were considered sufficiently good risks to undergo a one-stage resection and primary anastomosis. They were all done in three stages, first a transverse colostomy, second, resection of the diseased section of the colon followed by end to end anastomosis by the open method, and third, closure of the colostomy.

Preoperative Treatment: An attempt was made to correct losses of fluid, electrolytes and protein by the intravenous administration of solutions and blood transfusions. Each patient received 0.5 gm. of streptomycin every twelve hours and 300,000 units of penicillin every six hours before the initial transverse colostomy. None of these patients were in the hospital long enough to use sulfasuxidine by mouth prior to the initial colostomy. However, all of these patients received sulfasuxidine by mouth for five days before their second stage operation and again for four days before their third stage operation in addition to streptomycin and penicillin. Between the first and second stages they were given high caloric, high vitamin, low residue diets. The patients were instructed to irrigate their proximal loop with saline solution whenever necessary and to take mineral oil or cod liver oil at night for a lubricant whenever necessary. When these patients were readmitted for their second operation they were given small blood transfusions of 350 cc. to 500 cc.

Summary of three cases treated here is as follows:

Case 1. Mrs. A. J., aged 37, white, American, married housewife.

History: She gave a history of having been sick for several weeks with pain in the abdomen with alternating constipation and diarrhea, loss of weight, elevation of temperature, chilliness, and finally, unrelieved constipation.

Physical: Examination revealed that she was acutely ill with an abdomen which showed boardlike rigidity. There was a sensation of a mass in the left lower quadrant and excruciating tenderness here. Rectal examination was entirely negative. Patient was tender on bimanual examination.

Laboratory: Blood count showed 10,700 white blood cells with 87% polys and 8 stabs. Red blood count was 4,700,000 with 90% Hb. Temperature on admission was 99.6 and pulse 110.

Preoperative X-ray: She was given a saline enema followed by a barium X-ray which showed a few diverticula and obstruction in the sigmoid region.

First Stage: She was immediately prepared for surgery and under general anesthesia the abdomen was opened through a lower left rectus incision. Gentle exploration showed a swollen mass of diverticula at the region of the sigmoid. A stab wound was made just above the umbilicus in the left rectus muscle and a loop of transverse colon was brought up through the stab wound and held in place by a glass tube. The first incision was closed in layers and patient returned to her room in poor condition.

After-Treatment: She was fed intravenously for the first four days but was given sulfasuxidine (0.5 gm. every four hours) by mouth, and penicillin (300,000 units every six hours) by injection each day for four days. The colostomy was opened on the third day and began to function well on the sixth postoperative day. Patient was put on a high caloric, low residue, high vitamin diet with extra feedings. She was up out of bed on the fifth postoperative day and discharged to her home on the 19th postoperative day.

Second Stage: Patient was readmitted for her second operation five weeks after the first procedure. After ample preoperative preparation, another left rectus incision was made and about 20 cm. of sigmoid was resected followed by an end to end anastomosis without difficulty. The swelling which had been present at the first operation had now practically disappeared. The patient was up on her second postoperative day and was discharged from the hospital on the tenth postoperative day.

Third Stage: One month after the second stage

this patient returned to have her colostomy closed. She was prepared preoperatively for four days as mentioned above. Then the colostomy was closed without untoward effect and the patient returned to her home seven days postoperatively.

Case 2. Mrs. B. J., a 66-year-old white, single, American housekeeper.

History: This patient gave a history of having had scarlet fever and diphtheria as a child. She had an appendectomy in 1914, tonsillectomy in 1917, ulcers of the stomach in 1926 and a suspension of the uterus in 1948. She was admitted to the hospital this time because of a feeling of a mass in the rectum and constipation. She said that her bowels had not moved for five days.

Physical: Examination revealed a chronically ill female who was resting comfortably in bed at this time. There were no abnormal findings except in the abdomen. Here there was tenderness, muscle spasm and slight rigidity in the left lower quadrant. On vaginal examination the cervix was tender on motion. It was almost impossible to do a rectal examination because she had so much swelling at the tip of the examining finger. Also there was considerable discharge from the rectum.

Laboratory: Blood count showed 4,190,000 red blood cells with 88% Hb., 15,950 white blood cells with 77% polys and 23% lymphs. Urinalysis was entirely negative.

Preoperative X-ray: She was given a saline enema and then a barium enema X-ray which showed multiple diverticulitis of the left colon with almost complete obstruction.

First Stage: An exploratory laparotomy was done through a lower midline incision and a large mass of swollen diverticula was found in the region of the recto-sigmoid junction. In one place this mass had become so thin-walled that a rupture seemed inevitable. So, a stab wound incision was made above the umbilicus in the left rectus muscle and a knuckle of transverse colon brought through this opening and firmly fixed by placing a glass tube under the loop and a few interrupted sutures between the intestine and the fascia. The original incision was closed in layers and patient returned to her room in good condition.

After Treatment: The colostomy was opened on the third day and the patient was given sulfasuxidine by mouth up until the seventh day and she was given a high caloric, high vitamin diet with extra feedings. She was out of bed on the third postoperative day and ready to go home at the end of sixteen days.

Second Stage: Five weeks after the first opera-

tion, patient returned to the hospital. After five days of preoperative preparation the second stage was carried out. A left rectus incision was made, a portion of sigmoid about 18 cm. was resected, and an end to end anastomosis was done. This procedure was done with some difficulty because there was still considerable swelling and more bleeding than ordinary was encountered from oozing surfaces. Postoperatively, a transfusion was given and patient continued with sulfasuxidine. A high caloric, high vitamin, liquid diet was given for five days after which she was started on a low residue colostomy diet. She was up on the tenth day and went home sixteen days after operation.

Third Stage: She was readmitted to the hospital for the third time five weeks after the second operation. The colostomy was functioning well. After four days of preparation, as mentioned above, the third stage procedure was carried out without difficulty. Patient returned to her home in ten days and is doing well.

Case 3. Mrs. C. J., a 71-year-old white, married, American, Protestant housewife.

History: She gave a history of having fairly severe left lower quadrant pains for the seven days prior to admission, the pain being intermittent and crampy in nature. She had not had a bowel movement for seven days before admission. There was no nausea or vomiting. She gave a history of having had difficulty with chronic constipation for the past several years. Past history was non-contributory. She had a cyst removed from her left breast in 1924, tonsillectomy in 1926 and gallbladder removed in 1942 for empyema. On admission to the hospital she had severe dehydration, was running a fever and complained of generalized aches and pains and also chilliness.

Physical: Examination revealed that she was poorly nourished and acutely ill. There was profuse abdominal distension with hyperactive peristalsis and tympanitic percussion note. There was point tenderness in the left lower quadrant. Nothing was found on rectal examination and nothing on pelvic examination.

Laboratory: Blood count showed red blood cells 4,540,000 with 90% Hb. and 31,450 white blood cells with 88% polys and 12% lymphs. The white blood cells dropped to 15,900 on the day of operation.

Preoperative X-ray: A saline enema with barium enema X-ray was given and showed diverticulitis of the sigmoid.

Preoperatively: Patient was prepared with penicillin, streptomycin, enemas, intravenous fluids and two small blood transfusions. Nothing by mouth.

First Stage: An exploratory laparotomy was done through a lower midline incision seventy-two hours after admission. A large, swollen, congested mass was found in the left lower quadrant. A stab wound was made above the umbilicus in the left rectus muscle and a knuckle colostomy was done. This seemed to give adequate decompression. The original incision was closed in layers and the patient returned to her room in poor condition.

Following operation she ran a stormy course for four days and then her temperature levelled off and she started to improve. The colostomy was opened on the third day and was functioning well on the fourth day.

Second Stage: One month after the first operation a lower left rectus incision was made and about 20 cm. of sigmoid was excised followed by an end to end anastomosis without difficulty. The swelling previously seen at the first operation had now almost entirely disappeared making this second stage much easier. Patient was discharged to her home ten days postoperatively.

Third Stage: One month later patient was readmitted and after three days preoperative treatment, the colostomy was closed without difficulty and the patient was discharged to her home on the tenth postoperative day.

SUMMARY

Most cases of diverticulitis treated medically do well. There are, however, a few complications of diverticulitis such as the three cases reported here which demand surgical intervention. Also, there are a certain number of cases where it is impossible to differentiate between obstructing diverticulitis and carcinoma. These will need surgical treatment.

The most reliable and accurate means of determining the nature of the lesions is with barium enema X-rays.

The use of antibiotic agents in preparing patients for colon surgery has reduced some of the hazards.

BIBLIOGRAPHY

- Mayo, C. W. and Blunt, C. P.: The Surgical Management of the Complications of Diverticulitis of the Large Intestine, *Surgical Clinics of North America*, 1005: August, 1950.
- Cave, Henry and Wilson, E. Alsop: Diverticulitis of the Colon, *Surgical Clinics of North America*, 390: April, 1946.
- Mayo, W. J., Wilson and Griffin: *Surg., Gynec. and Obst.*, 5:8, 1907.
- Pemberton et al.: *Surg., Gynec. and Obst.*, 85:523, 1947.
- Maingot, Rodney: Diverticulitis of the Colon, *Textbook of Abdominal Operations*, second edition, 57:989, 1948.
- Smithwick, R. H.: Experience with the Surgical Management of Diverticulitis of the Sigmoid, *Ann. Surg.*, 115: 969-983 (June), 1942.

REPLACEMENT OF A SKIN GRAFT BY A BASAL CELL CARCINOMA*

EDMUND B. SPAETH, M. D., F. A. C. S., F. I. C. S.,** Philadelphia, Pa., and Boothbay Harbor, Maine

The complete replacement of a skin graft by carcinoma is a situation of great rarity. In that case one could wonder whether carcinoma did not exist prior to the skin grafting. The presentation which follows seems to rule out, with fair certainty, that possibility. Another case will be presented, in addition, to illustrate the usual sequence of occurrences in a somewhat similar instance.

Mr. L. K., a sixty-year-old Chinese cook, was admitted to the author's ward service of the Graduate Hospital of the University of Pennsylvania, in the winter of 1947, with a marked cicatricial contraction of both the upper and the lower lids, on the right, the result of a third degree burn from hot fat. The burn had occurred six months prior to his admission. The only treatment he had received for the burn was the application of petroleum jelly dressings and some type of mild eye wash. The lids were in a marked

ectropion, dragged downward toward the inner canthus; with a large amount of scar, practically a keloid, replacing the entire inner canthus. This passed up into the forehead and over the bridge of the nose toward the opposite left internal canthus. The cornea of the right eye was involved to a slight extent by the original injury and through subsequent exposure, but the eye was in a remarkably good condition, considering the original injury and the subsequent deformity. Exact visual acuity could not be taken because of language difficulties and illiteracy.

Five different operations were done upon the patient prior to his supposedly temporary discharge from the hospital. These consisted of scar resections, resuture, and finally two autogenous skin grafts for the correction of the residual deformity. The patient was released from the hospital with the lids in temporary tarsorrhaphy. He was instructed to return in three months for reexamination and for completion of the case. The patient was not seen, and follow-up investigations were fruitless, until this spring, May of 1950, when the patient appeared at the Wills Eye

* Read before the Staff of Saint Andrews Hospital, August, 1950.

** The Graduate Hospital of the University of Pennsylvania and Wills Eye Hospital, Philadelphia, Pa.

Hospital having been admitted to the clinic of Dr. Warren S. Reese. When it was discovered that he had been originally under the care of the author at the Graduate Hospital the patient was transferred to the author's service at the Wills Eye Hospital, for further treatment.

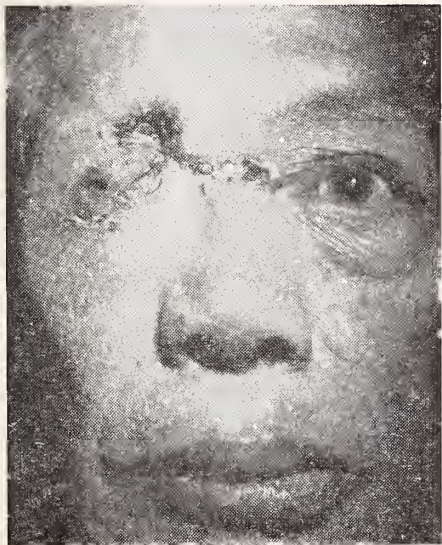


Figure 1. Appearance of case at time of readmission.

Figure 1 is an illustration of the case at this time, i.e., when admitted to the Wills Eye Hospital. The entire area of skin grafting was replaced by an area of diffuse, irregular ulceration with interposed areas of epithelial sclerosis. The ulceration passed over the bridge of the nose to the opposite inner canthal angle. The intermarginal adhesions (from the original operation), were still present but modified to a tremendous degree by the extensive tissue destruction. The infiltration and ulceration involved the superciliary region and at this place the ulceration passed through the superficial tissues down to the periosteum of the forehead, and possibly into the orbit as well. It seemed as if the entire skin graft had been replaced by an area of carcinomatous tissue and that this had advanced beyond the original boundaries of the graft to include the contiguous tissues as well as the depths of the orbit.

It is a well known clinical fact that carcinoma may recur in a position originally treated by radiation therapy or through resection of the malignancy. It is fairly well known that such regions are to be treated with skin grafts for the correction of a soft tissue defect remaining. If the malignancy recurs after the skin grafting the recurrence of this malignancy is usually at the edge of the graft and not within the graft; i.e., the graft will be pushed aside by the growing malignancy, — but it will not replace that graft. In the case being presented, however, it was rather evident that the malignancy had advanced quite differently. The distribution of the carcinoma into

the areas of the original cicatrix and the entire absence or destruction of the graft was most striking.

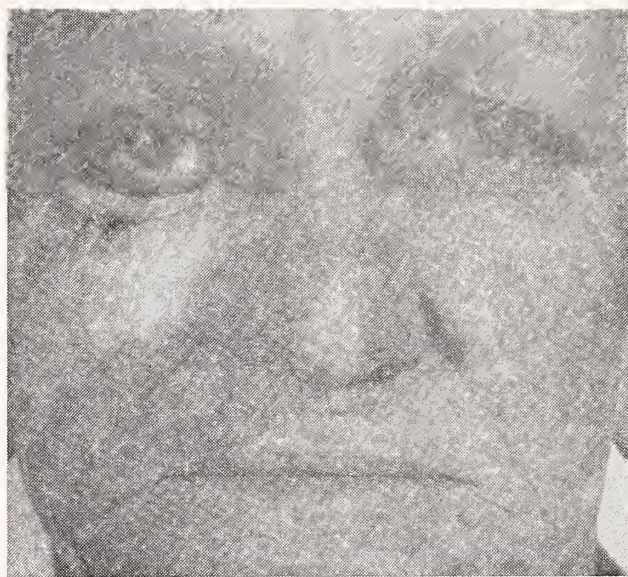


Figure 2. Recurrence of malignancy at edge of marginal skin graft.

Figure 2 is a case for comparison. It is one of early lupus erythematosus (a presumptive diagnosis in that the original disease and the treatment for it were in the period of the patient's early adult life), which had been treated by X-ray and quartz light therapy. In recent years he had developed many dermatoses about the lids. These would ulcerate, fall off spontaneously, and disappear. One of these, however, continued to advance and a biopsy done by the author proved it to be a basal cell carcinoma. A block resection of the lower lid was carried out. The pathologist reported that the resection showed normal tissues (perhaps not normal, because of the scarred depigmentation, but certainly an absence of carcinoma cells), about the carcinoma; — apparently the entire malignant area had been resected. Several weeks later the absent lid margin was restored by a free razor cut, split skin graft. One year later this patient returned with a recurrence of the car-



Figure 3. Same case after resection and grafting.

cinoma at the lower edge of this skin graft. The illustration is one of this case at that time. One can see the manner in which the skin graft is spared. The recurrence has developed and reappeared in the area below the graft but not beneath it. Figure 3 is this same case following the repetition of the same technique, further resection, careful pathological examination to confirm the hope that all malignancy had been removed with the resection, and the reapplication of a similar graft.



Figure 4. Extent of resection necessary for the removal of surface malignancy.

Figure 4 is the original case, upon which this discussion is based, following the resection of the malignancy. The extent of the malignancy can be appreciated, without difficulty, by the size of the necessary resection. The eyeball was still so satisfactory that it was planned to spare this, if possible, — depending, naturally, upon the result of the biopsy findings. When this was received, from the pathologist, it was found to the distress of all concerned that the malignancy had passed through the soft tissues into the depths of the orbit beyond the borders and the lower surface of the tissue examined. It was evident that a complete exenteration of the orbit was indicated. Figure 5 is the illustration of the operative site following that surgery. In addition, the appearance of the additional necessary skin graft can be seen, this having been placed following some X-ray therapy.



Figure 5. Case after evisceration and final grafting.

The case has been discharged, and again he has disappeared without trace in so far as any follow up is possible.

It is hoped and also believed that the case will continue without further carcinomatous involvement. The treatment was vigorous, though not unnecessarily radical, was well controlled by the pathological examinations, and was consistent with the past experiences gained from the treatment of many cases of basal cell carcinoma of the lids.

CONCLUSIONS

The case presented seems to suggest a rather unusual fate for an autogenous skin graft, that is a carcinomatous transformation of the graft. One might suspect that some malignancy, undiagnosed but present, had existed prior to the original plastic surgery. This is possible considering the cause for the original burn, a suspicious carcinogenic agent — hot fat. While that is only a conjecture it does make it impossible to state conclusively that the skin graft did undergo carcinomatous changes. The ultimate satisfactory result obtained from the original plastic surgery is unfortunately, for this presentation, not available in that it was not photographed at the time of the original discharge from the Graduate Hospital. It was anticipated that the patient would return for continued observation, making a photographic recording possible at any time. That plastic result was without any remaining irritation or raw or unhealed area, and had a minimum of residual scarring. This was not of a keloidal character as was the earlier cicatrix. It seems, when one considers all the clinical evidence available that the condition probably developed as stated in the title for this case report. Time, in the future, may unfold some further interesting facts in this somewhat unusual case.

Among the 410 persons who died from tuberculosis in Minnesota in 1949, 259 were 50 years or older, of whom 129 were 65 years or over. Apparently the tubercle bacillus is making its last stand in old men.

Of the 259 persons of 50 years or older who died in 1949, only 72 (27.8 per cent) were women. — J. Arthur Myers, M. D., *Journal-Lancet*, April, 1950.

CARCINOMA OF THE ENDOMETRIUM AND FALLOPIAN TUBE

Report of a Case

PHILIP O. GREGORY, M. D., and IRVING I. GOODOF, M. D.*

It is generally recognized that primary carcinoma of the Fallopian tube is a relatively uncommon disease with approximately 375 cases reported in the literature as of 1947. Carcinoma of the endometrium, on the other hand, is a common condition which is easily recognized and quite satisfactorily treated, especially in the early stages. The simultaneous occurrence of primary tumors in the two locations would indeed be a rare situation. Since the general manner of growth may be extremely similar in the two areas, the problem of determining which lesion is primary and which metastatic may be quite difficult on a purely morphologic basis. For this reason the general impression has been that since primary carcinoma of the endometrium is much the more common disease, the tumor in the tube is almost secondary to this. This has also been shown by the presence of tumor within the lymphatics of the tube without particular involvement of the mucosa. A recent case has brought forcibly to mind the difficulties encountered in arriving at a complete accurate diagnosis in instances of this type.

A fifty-eight-year-old unmarried white woman was referred to St. Andrews Hospital because of a diffuse thrombophlebitis involving the greater saphenous vein and extending from the left instep to the left groin. Ligation was done under local anesthesia shortly after admission to the hospital. Further investigation of this patient in the hospital revealed that she had completed the menopause at the age of fifty-two but had had some bleeding from the uterus for the past year. It had never been profuse and had caused very little inconvenience. Physical examination revealed a chronically and acutely ill white woman. No abnormalities were recognized except on pelvic and bimanual examination. Vaginal examination showed a large mass on the left side of the pelvis. Bimanual examination showed this mass to be immovable and to fill the entire left side of the pelvis. A tender mass was also present on the right. X-rays of the chest were negative. Examination of the blood showed normal red count and hemoglobin; 11,750 white cells with 85 per cent neutrophils and 15 lymphocytes. A urine specimen showed three plus albumin and large numbers of red and white blood cells. Bleeding and clotting time were within normal limits. An exploratory laparotomy was carried out two days after the vein ligation and a large tumor

was found in the lumen of the uterus. There was also a dark red, swollen, twisted, congested, inflamed right tube which was plastered against the wall of the pelvis on the right. A panhysterectomy was done and the patient made an uneventful recovery. She was discharged from the hospital on the seventh post-operative day with the incision well healed. A check-up at the end of one month revealed normal healing and no evidence of recurrence of tumor.

Pathologic report: Specimen consists of a uterus with cervix measuring 11 x 7 x 6 cm. The cervix shows slight mucosal erosion. There are numerous cystically dilated mucous glands. The fundus of the uterus shows the myometrium to contain encapsulated nodules of varying size. The endometrium is replaced by a mass of friable, partially necrotic, papillary material grossly suggesting a neoplastic process. Section through various areas reveals this material to penetrate the wall to a considerable extent but it does not come within 3 to 4 mm. of the serosa at any point. One Fallopian tube is normal in size and appearance. Its attached ovary is sclerotic and not remarkable. The opposite tube shows pronounced enlargement, dilatation and tortuosity. Section reveals its mucosa to be extremely hyperplastic to the point of suggesting a primary neoplastic process. Section through the tube at various points reveals it to be completely filled with papillary structures forming an almost solid mass. The ovary on this side is not remarkable.

Microscopic examination: The Fallopian tube shows pronounced lymphocytic infiltration. There is marked proliferation of villi with epithelial hyperplasia and anaplasia. There is piling up of epithelial cells in many areas and the cells show considerable variation in size, shape and staining reaction. There are large numbers of mitotic figures, many of them atypical. The general appearance of this tube suggests that this tumor is primary in this region, especially since the manner of growth is papillary and villous like, just as is the normal tubal mucosa. There is partial penetration of the wall of the tube but no penetration through the muscularis to the serosa. Sections of the uterus show the endometrium and the greater portion of the myometrium to be replaced by solid masses of tumor cells, here showing no particular tendency to papillary architecture but rather growing in large necrotic masses. The cells are identical with those seen in the Fallopian tube. There is no penetration of the entire wall of the uterus by tumor and the lesion appears to be limited to the

*From the Surgical and Pathological Services of St. Andrews Hospital, Boothbay Harbor, Maine.

specimen removed. The ovaries show only sclerosis.

Discussion: This case reveals the difficulty which can arise in making a decision as to the primary site of a tumor involving two related structures. The presence of a large mass of necrotic tumor tissue within the uterus certainly suggests that this should be a primary tumor. It is entirely consistent with the appearance usually seen in primary carcinoma of the endometrium, and there is no reason to suspect that it is not primary here. The Fallopian tube, on the other hand, shows the characteristic type of architecture seen in a primary carcinoma in this location. However, many carcinomas of the Fallopian tube show complete limitation of the tumor to the mucosa without involvement of the wall to any extent, where-

as the uterine carcinomas which spread to the Fallopian tube usually spread by means of the lymphatics and, therefore, will show some degree of involvement beneath the mucosa. This is apparently what has occurred in this case since the inner portion of the wall, at least within the muscle layers, has been replaced by tumor. The extent of the tumor in the tube is considerable so that the early stages of spread are not recognizable in this specimen.

SUMMARY

A case of endometrial carcinoma is reported in which the involvement of a Fallopian tube by tumor gave rise to a problem of determination of primary site. This aspect of the case is discussed.

GETTING ALONG WITH ONE'S SELF AND OTHERS*

CHARLES E. BENSON, PH. D., Professor Emeritus and Former Chairman, Department Educational Psychology and Director Psycho-Education Clinic, New York University, New York

It has been said that man is his own worst enemy. This may not be true. It is true, however, that man often has great difficulty in getting along with himself. This is largely because man does not understand himself. We need as never before greater knowledge of the science of man. We need a knowledge of human science to serve as a basis of individual management as well as the management of human affairs. We need individual and personal engineering to balance physical engineering. At the present time there is a great need for knowledge of human science to aid man in solving some of the conflicts of self and those of mankind. The present conflicts of the world are evidences of the lack of knowledge of and control of the thinking, emotions and actions of man.

Social relationships are the outgrowth of the thinking, feeling and acting of the individuals making up society. To resolve the conflicts of human relationships requires a knowledge of the causes that stimulate these mental and emotional reactions. If we know more of the science of living we might be able to master the problem involved in living. Individual progress comes when we know and can put into action the techniques and skills used in the control and mastery of the complex and essential procedures of life.

Getting along with one's self requires the mastery of the inter-relationship of three great concepts: first, *Interest* — considered the greatest and most important concept in the educational process of the individual. Second, *Inhibition* — which is essential to individual control. Third, *Adjustment* — a mental

condition required in the modification of human reactions and behavior.

An individual who has a personal interest in his own activities plus an interest in other people and the environment or community in which he lives usually gets along with himself and those about him. An absorbing interest which occupies our waking hours gives little time for self-condemnation or criticism. The busy person is, as a rule, the happy person and the happy individual usually succeeds. The busy person who works long hours at what he likes seldom, if ever, has a so-called nervous breakdown. He has too many things to do to become upset or go off on an emotional binge.

The ability to inhibit or control an act or thought is important in getting along with one's self as well as with others. Many psychologists consider that "inhibition" is the most valuable asset in individual development. We must all learn to control our emotional and intellectual life if we are to live in peace with ourselves and those about us.

Adjustment is essential to the mastery of one's self. There are three fundamental adjustments each one must make in order to get along with himself and others.

The first, and perhaps the most important of these adjustments is the adjustment to one's self — to our inner and spiritual life, to the internal forces acting as the result of our thinking, feelings and emotions. These internal forces can destroy our happiness, or if properly controlled make life worth living.

The second kind of adjustment is to our fellow beings. This involves the relation of man to man.

* Read before the staff of Saint Andrews Hospital, Boothbay Harbor, Maine, September 22, 1950.

Man cannot live unto himself alone. He must consider those about him. He learns from others and in turn gives to others. Life consists of give and take. The individual who fails to consider this rule of life can look forward to dismal failure.

The third fundamental adjustment we must all make is to the environment in which we live, in other words to the external forces about us. Man must master these conditions or adjust to them.

There are many kinds of adjustments which we make everyday. The most difficult of these are the ones within our own mental and emotional life. It is well known that the greatest conflicts that we have are between two ideas or emotions. To resolve these conflicts and control the causes of them we must organize, reorganize or modify our thinking and affective life. The world is full of men and women who are unable to organize themselves for some definite end or purpose. Our mental institutions are filled with individuals who cannot adjust to the internal or external forces acting upon them.

To be effective in our work we must be able to direct and adjust our thinking, to control our emotional life and to have productive inhibitions. Emotional insecurity is the most difficult to adjust or resolve, but it is essential to normal, happy living.

We may not be able to master all of the conditions of our environment, only a part of them. We must, therefore, of necessity, adjust ourselves not only to what we have already mastered, but to that part which we are unable to master. We have to constantly adjust ourselves to failure, disappointments and successes. Mastery and adjustment must go hand in hand all through life. We are constantly in a state of adjustment to all the forces or conditions we have failed to master.

A very important factor in the making of correct adjustment is the correct timing. Timing is as important in life's emotional situations as in motor skills. Time is a great modifier of human action. Conditions within as well as conditions without, if given time to reorganize may result in a favorable reaction. If we are unable to face some problem, to solve or resolve it we must accept defeat.

The condition of life may become so unbearable that the escape mechanisms are put into action. This situation often leads to suicide. It is often difficult for men and women who have lived active lives to adjust to the quiet of a retired existence. There is a tendency to emotionalize the so-called insignificance of the activities engaged in, which leads to too much thinking about the self. We are all aware of the fact that our feelings and emotions control us more than our intellectual processes. We have to feel in order to really do. No law is obeyed unless it is felt and its importance emotionalized. The affective aspects of life aid us in gaining confidence, and self-confi-

dence is an important factor in everyone's success. Confidence equals knowledge plus feeling. To get along with one's self requires confidence, imagination and insight into our abilities to solve the problems facing us for solution.

We can tell by the expression on the face and the gleam in the eye something of what is going on in the thinking machine. We can see fear, anxiety, courage, sadness, anger, illness, boredom, lassitude, evidences of the feeling of inferiority or superiority, and happiness stamped on the faces of those we meet. These mental states are within the individual. It is a personal affair based upon past experiences and faith in what may happen in the future.

When a person turns his attention inward, we often say that he is in a morbid state of mind. This, however, is only true in cases where he does nothing else. The interest in his personal experiences is out of proportion and therefore distorts his life's program and vocation.

Every normal person desires to make the most of himself. In order to do this we must take an honest look at ourselves. Are we willing to do this? It would be easy enough to do if we would lay aside our vanity and self-blame and hold to the fact that only by knowing ourselves as we are can we use our opportunities to the fullest.

It helps us to understand ourselves better if we have some knowledge of the human body. No instrument known to man is more complicated or equal in its functioning to the machinery of the human mind. Its millions of parts work together in a complex co-operation. It is when this coöperation does not take place that trouble begins. The purpose of the body is to maintain life. Mind is the function of the brain. If it were not for the functioning of the nervous system there would be no consciousness. There is no mental life apart from physical life. Our mental and physical life go along together each affecting the other. Trouble in the body structure or physical organization may and usually does affect the mental and emotional reactions.

Most of our disturbances are the result of conflicts which take place within the framework of the mental sphere. We have to learn to live within ourselves. We are constantly struggling to restrain our emotions, to discipline our desires, to tolerate inherent weakness and to accept inescapable limitations which prove too exacting. We would be more willing to know ourselves better if it did not demand the expenditure of energy, honest self-criticism and maturity of judgement. We are afraid of what the self may reveal. We seek an easy way of living and happiness but there is none.

It is difficult to make our experiences contribute to self growth and improvement. Life is made up of experiences and it is the organization of these ex-

periences that form the basis of our achievements. We are the sum total of all the experiences we have had or are having at the present time. The richest individual is the one who has had the finest and the most wholesome experiences.

Marvelous as is the working of the body in all of its parts, no where do we find such a complex mass of happening constantly going on as in the brain. The better we understand it the stronger becomes our belief that the brain should be thought of as the structural seat of the self and the mind as the functional focus of the self. It may help us if we will think of the self as a unity that includes not only the mind and the brain but also every other part of the body.

The basis of most of our behavior is physiological habits we have acquired. It has often been said that habits make good servants but poor masters. We cannot build our personal mental hygiene program unless we come to some kind of agreement with our own habit-life. We must accept what we are unwilling to change and we must build what we insist upon having.

Perhaps the most important factor in the process of getting along with one's self is insight into our own condition. There can be no recreation or reorganization without insight. When a person suffering from a mental disturbance gets insight into his condition, there is hope for his improvement. When men and women who have trouble getting along with themselves and others get insight into their troubles, they may be able to solve the difficulty and secure an emotional balance within themselves and harmony with other persons.

We should have some knowledge of personal psychology so that we may find aids to the understanding of our mental, emotional and social maturing. The concept of psychological maturing can serve as a great help in guiding children, as well as adults, in understanding themselves and in knowing when they are ready to act. We must learn to solve our problems as adults. To mature is to bring our powers and abilities to realization.

Successful living necessitates the ability to deal with other people. We develop by helping others to grow to the limit of their potentialities. As our relationships with other people grow in complexity, proficiency in handling people becomes increasingly important. We all feel the constant need of being versed in the science and skilled in the art of influencing others. All human activity is initiated and sustained by some urge, craving, desire or want. A knowledge of these is a great aid in dealing with others. Our failure in various life situations to get others to comply with our wishes, is largely owing to the fact that we do not know or understand man's basic wants. We have no techniques for directing or harnessing these wants, desires or inner urges.

We all have, to some degree, the feeling of personal worth. This feeling is one of the most important of human drives. We must understand the effect of the feeling of personal worth and the methods of directing it before we can influence human behavior. Without this knowledge we can seldom be successful in dealing with others. The feelings of personal worth can be made by either a positive or negative appeal. In the positive appeal we further the individual's pride and are then able to direct his action. In the negative appeal we may create a fear that unless he does as suggested he will lose prestige. The effect of either method depends largely upon the sincerity of the one attempting to do the persuading. Insincerity is easily detected, and will cause a great deal of resentment. We all like to think that we can make our own decisions and are free to do as we choose, that we are a self determining being. The indirect method is often more effective than the direct method. To make an individual feel and think that he is a mere puppet is disastrous to wholesome human relationships. The indirect method of approach is sometimes called suggestion and if done skillfully will make the individual think that he has originated the idea. He has not only accepted the idea but is determined to act accordingly. He thinks he is following his own thinking and direction. We would all increase our efficiency in getting along with others if we would occasionally drop a remark instead of expressing our views as strongly as we do. People like to feel that they are acting on first-hand rather than second-hand decisions.

To get people to accept our facts and points of view we must set them forth clearly and in several different ways before we draw any conclusions. By doing this we enable them to have the satisfaction of believing that they originated the idea. Another way of getting people to agree with us is to state an idea a number of times in different ways over a long period of time. We can also say that a number of noted individuals have said and believed the fact we are trying to have accepted. We can once in a while get a person to follow us by putting the idea in the form of a question and have him answer it. The answer then will be his own, to which in most cases he will agree.

A master method in handling people is through the sense of humor. We can gain good will and make people agree with us if we can make them laugh and enjoy our humor. This ability is a very effective weapon of the public speaker. The safest types of humor are those that convey a compliment or put the joke on one's self or imaginary people or people entirely out of range. We can win people's esteem and affection by being good humored and pleasant. Emotions are contagious. We can hold people's attention and convince them by approaching them through their own personal experiences and

WHAT EVERY MAINE DOCTOR SHOULD KNOW ABOUT CIVIL DEFENSE AND PUBLIC SAFETY PLANNING — SECOND REPORT

By: The Committee on Emergency Civilian Medical Defense of the Maine Medical Association*

Much additional progress has been made in Civil Defense and Public Safety Planning in the State of Maine since the Committee on Emergency Civilian Defense published its first article under this same general heading in the March, 1950, issue of THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION. Therefore, it seems timely that the Committee make available to the officers and to the members of the Maine Medical Association such information about these more recent developments in Civil Defense Planning as may be of particular interest to the medical profession.

Recommendations submitted by the Committee on Emergency Civilian Defense at the June 18, 1950, meeting held at Poland Spring were subsequently accepted by the President and the Council of the Maine Medical Association and forwarded through channels to the State Civil Defense and Public Safety Director and to the Governor of Maine. The latter two state officials have given their approval to each of the three major recommendations which were submitted to them for consideration; and as a result of this favorable action, the State Commissioner of Education has already recommended to the superintendents and principals of the senior high schools that the Standard Red Cross First Aid Course be incorporated into the school curriculum for junior and senior students. Furthermore, the university and colleges in this state are also making plans to give the Standard Red Cross First Aid Course to their students this year. The County and City Civil Defense Directors are expected to assign these students to first aid stations and to collecting points in the vicinity of their homes as soon as they have satisfactorily completed this instruction in first aid.

The Veterans of Foreign Wars have agreed to help with the training of personnel in first aid and in the various aspects of evacuation of sick and injured from disaster areas. It is also expected that the American Red Cross Chapters in Maine will resume the teaching of classes which will include instruction in both their standard and their Advanced Courses in First Aid.

The inventory questionnaire, prepared by the Committee on Emergency Civilian Defense, which lists all the "minimum essential medical equipment and

supplies" that would be needed to treat large numbers of disaster casualties, has been approved by the State Civil Defense Director for distribution in the near future to the general hospitals, wholesale drug houses and medical supply houses in Maine. Questions, designed to obtain pertinent information in regard to the personnel assigned to, and equipment and supplies carried in the X-ray, laboratory, and blood bank departments and in the operating rooms in the general hospitals within this state, have also been included as an additional part of this questionnaire.

Finally, the recommendations made by the Committee on Emergency Civilian Medical Defense of the Maine Medical Association concerning the fixing of responsibility for the Medical Care Aspects and for the Public Health Aspects of Civil Defense Planning have been incorporated into the duties and responsibilities prescribed by the Governor and the State Civil Defense Director for this #3 State Deputy Civil Defense Director and his assistants. On July 19, 1950, Colonel Spaulding Bisbee, the State Civil Defense Director, wrote as follows to Doctor Charles W. Steele, the Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association.

"Governor Frederick G. Payne has instructed me to notify you of your appointment as Deputy Director in Charge of the Medical Aspects of Civil Defense and Public Safety for the entire State of Maine. You will serve on my staff and I would prescribe your duties somewhat as follows: * * * * *

These duties, as prescribed in this original letter of appointment, will not be quoted here since Colonel Bisbee, the State Civil Defense Director, has outlined them in greater detail in a later communication dated August 21, 1950, which he addressed to all County Directors of Civil Defense and Public Safety in Maine, a copy of which letter is included as Appendix "A." In this letter, the five Deputy State Civil Defense and Public Safety Directors and their assistants have been named and their duties and responsibilities have been prescribed in their essential detail.

Members of the Maine Medical Association will be glad to learn that Doctor Albert W. Moulton of Portland, the Deputy Chairman of, and Doctor Clarke Miller of Lewiston, a member of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association, and Professor Fred-

* Charles W. Steele, M. D., Chairman; Ralph A. Getchell, M. D.; Harry Butler, M. D.; Albert W. Moulton, M. D.; Garfield G. Defoe, M. D.; Frederick C. Dennison, M. D.; Harold E. Small, M. D.; M. Allen Torrey, M. D.; John B. Thompson, M. D.; Clark Miller, M. D.; Roscoe L. Mitchell, M. D.; and Col. O. H. Stanley, M. C., U. S. A. (Ret'd).

erick B. Oleson of the University of Maine have been named as "Assistant State Deputy Directors #3.

The latter named person has been charged with the responsibility of outlining a table of organization and equipment for radiological detection teams which will be organized throughout the State. It has been deemed advisable to organize, equip and train five "Radiological Detection Teams" which can be attached to the Mobile Reserve Battalions. Since more than one of these Radiological Detection Units may be sent into the same major disaster area, it is of utmost importance that these units all use the same equipment and that they use the same procedures for obtaining data and that the same standards be used for interpreting the results. Therefore, Professor Frederick B. Oleson, who took the five-week course conducted by the Atomic Energy Commission this Spring at Long Island, New York, has been charged by the State Civil Defense and Public Safety Director and the State Deputy Director #3 with devising the Table of Organization and Equipment for these Radiological Detection teams and with outlining the course of instruction and training program to be carried out by each Radiological Detection Team.

A. The following Table of Organization has been set up for a Radiological Detection Team.

I. Administrative Staff:

- a. Commanding officer or leader of the team. (A professor from the Department of Physics or Radiology.)
- b. Deputy Commander or alternate leader. (A professor from the Department of Engineering or from the Physics or Chemistry Department.)
- c. Additional staff to consist of:
 1. Radiologist (medical liaison and consultant).
 2. Supply officer and an assistant supply officer. (Someone from engineering department or one who is familiar with maintenance and calibration of instruments.)
 3. A biologist and an assistant.

II. Three Monitoring Squads consisting of two men each (plus alternates).

- a. High school science teachers.
- b. Scientifically trained personnel familiar with the instruments.

B. Table of Equipment.

- I. Film badges.
- II. Pocket docimeters.

III. High Level Survey Meters. Portable Ionization chamber type.

Examples: Juno, Cutie Pie, etc.

IV. Low Level survey meters — Portable Geiger-Mueller Type.

V. Atomic Weapons Effects Hand Book (Atomic Energy Commission Publishers and available from Government Printing Office, Washington, D. C.).

C. Duties of the Administrative Staff.

- I. Actual Direction of the headquarters staff and of the monitoring teams.
- II. Medical Liaison.
- III. Communications between the monitoring squad and headquarters staff and with the local, county and State Civil Defense Directors.
- IV. Plot isodose curves, the principal interest being in the 1 r/hr and the 10 r/hr boundaries.
- V. Personnel monitoring. (50 r/day not to exceed 100 r for team members).
- VI. Supplies.

D. Duties of the Monitoring Squads.

I. Carry the following equipment:

- a. Film badge.
- b. Pocket docimeters.
- c. One high level survey meter of the ionization chamber type (must be calibrated against proper standards of radium at a central laboratory).
- d. One low level instrument of the Geiger-Mueller type (must be calibrated against proper standards of radium at a central laboratory).
- e. Rubber overshoes, coveralls, assault mask, gloves, etc.

II. Procure the necessary radiation data by proper use of the above equipment to enable the administrative staff to plot out areas of dangerous radiological contamination on the ground and air in a disaster area.

E. Training and Instruction.

- I. The staffs of these defense teams should receive training and instruction by familiarizing themselves with the Atomic weapons Effects Hand Book.
- II. Those persons with scientific background and who are familiar with the instruments will require very little formal training; but those men without this scientific background will need instruction and training, particularly in the use of the various instru-

ments which may be available for use by his team.

- III. Team leader (with assistance from Assistant Deputy #3) responsible for training of of team in use of available instruments.

The State Deputy Director #3 and his assistants have been charged with responsibility for:

- a. Medical and Health Services.
- b. Public Health.
- c. Medical Care Services which will include:
 - 1. Casualty Medical Services.
 - 2. Nursing Section.
 - 3. Pharmacy.
 - 4. Medical Practice.
 - 5. Dental Services.
 - 6. Physical Medicine.
 - 7. Administration.
- d. Radiological Defense Division.
- e. Chemical Defense Division.
- f. Other Special Weapons Defense Division.

In addition, the State Deputy Director #3 has been instructed to consult with:

- a. The Commissioner of Agriculture, A. K. Gardner, State House, Augusta, regarding:
 - 1. Diseases of animals transferable to humans.
 - 2. Diseases of plants and vegetables detrimental to humans.
- b. The Commissioner of Health and Welfare, David H. Stevens, State House, Augusta, regarding the Public Health Aspects of Civil Defense Planning. In accordance with recommendations made previously by the Committee on Emergency Civilian Defense of the Maine Medical Association, the Governor has indicated that:

- 1. The emergency Services rendered by the State Department of Health and by the District, County, and Local subdivisions of the Public Health Agency would be the same as the ordinary service rendered by the department.
- 2. After disaster occurs the State Department of Health and its subdivisions would be responsible for the following:
 - a. Milk and food sanitation.
 - b. Supervision of general sanitation in emergency shelters, etc.
 - c. Sanitary control in disaster areas.
 - d. Recognition of and prevention of spread of communicable diseases.
 - e. Mass immunization of disaster victims.
 - f. Furnish all necessary biologicals and vaccines.

Commissioner Stevens has already named members of his department to a committee for the purpose of integrating the activities of the Department of Health and Welfare with the State program of Civil Defense and Public Safety. Called to serve on this committee were: Maurice A. Priest, M. D., District III Health Officer; Miss Pauline Smith, Director, Division of Public Assistance; Arch H. Morrill, M. D., Director, Diagnostic Laboratory Division; Elmer W. Campbell, P. H. D., Director, Division of Sanitary Engineering; Miss Helen F. Dunn, R. N., Director, Division of Public Health Nursing; Mrs. Margaret H. Oaks, Assistant to the Director, Division of Communicable Disease Control. The Commissioner will serve, ex-officio, as Chairman of the Committee and Miss Ruth T. Clough, Health Educator will serve as secretary.

Mr. Stevens has indicated that the fundamental considerations of the above named Committee from the Department of Health and Welfare will include:

- 1. Evaluation of the present departmental program in respect to the State Civil Defense and Public Safety Plan.
- 2. Consideration of allied health program.
 - a. Drafting of a plan under which the Department of Health and Welfare will operate in coöperation with the State program of Civil Defense.

The Department of Health and Welfare is still working on the details of this plan. Therefore, it cannot be included with this progress report but it is hoped that the plan will soon be ready for release and publication.

County Civil Defense and Public Safety Directors have now been named for each of the sixteen (16) counties within the State of Maine. The names and addresses of the present County Civil Defense Directors will be found in Appendix "B" which is attached to this communication.

The Governor and the State Civil Defense and Public Safety Director have prescribed the duties and responsibilities of the County Civil Defense Directors. Interested readers are referred to Appendix "C" which is attached for details concerning these prescribed duties for the County Civil Defense Directors.

The majority of the County Civil Defense Directors have now named five Deputy Directors to serve with them in their respective counties. The names and addresses of these Deputy County Civil Defense Directors have been listed along with the names of the County Civil Defense and Public Safety Directors in Appendix "B."

The Governor and the State Civil Defense Director have prescribed the duties and responsibilities for each of the five Deputy County Civil Defense Directors. Maine doctors will be most concerned with

the duties and responsibilities of County Deputy Civil Defense Director #3 who has been given administrative supervision over the Radiological Defense, Chemical Defense, Other Special Weapons Defense, and Medical Health Services Division. A very detailed description of the activities included under the main divisions listed above have been set forth in Appendix "D" which is attached; and, interested readers are referred to this appendix for these details.

Each County Civil Defense and Public Safety Director and his number three Deputy Director can be expected to begin work soon on a survey of the larger towns and cities within their respective county with a view to selecting the sites at which first aid stations, collecting points and clearing stations will be established. It will also be necessary for them to agree upon the summer hotels, boys' and girls' camps and other installations which are to be taken over for use as emergency auxiliary hospitals, convalescent hospitals, evacuation centers, displaced person camps, etc., in event a serious disaster should strike in their county or in an adjoining county.

It has been recommended for purposes of basic planning that a sufficient number of emergency beds should be provided so that approximately one-third the population within each large city within this state could be hospitalized in event any of these thickly settled industrial areas should become enemy targets. Although Maine has a very limited number of actual legitimate military targets, it is fully realized that the geographic location of the state is such that enemy bombers might very well be expected to fly over here on their way to other target areas along the eastern seaboard. Furthermore, experience in England during World War II showed that enemy bomber pilots, whenever they were pursued by fighter planes, would jetson their bombs on the first possible target in sight rather than take a chance on being shot down with their bombs aboard before they could reach their original target objective. Therefore, it is the feeling of Civil Defense Planners here in this State that preparations must also be made to cope with any such chance attack by enemy planes on other Maine towns and cities besides those that might be primary military targets.

For the past several months the Committee on Emergency Civilian Defense of the Maine Medical Association has been working diligently with the State Civil Defense Director in an attempt to perfect the blueprint of the organizations which will make up the Chain of Evacuation through which will pass the civilian casualties from any large disaster area within this state. The following chart shows this Chain of Evacuation in diagrammatic form.

It has been agreed that one "First Aid Post" should be provided for each 5,000 of the population

in the thickly settled industrial cities. First aid teams and litter bearer teams will be assigned to and will work out of these First Aid Posts into the disaster area.

One "Collecting Post" should be provided for each 25,000 of the population in the larger cities. In event the area was less thickly populated collecting posts should not be more than two miles apart in order to assure that patients' travel does not exceed one mile as a rule. A collecting post should service no less than three and no more than five first aid posts in any disaster area.

A "Collecting Company," composed of one litter platoon, one collecting post platoon, and one ambulance platoon, would be responsible for transporting casualties from the first aid posts to the collecting post and from the latter to either (1) the combination clearing station and 60-bed surgical hospital if they are very seriously injured and able to be transported only short distances or (2) the fixed general hospitals or the auxiliary general hospitals if they are not critically injured and able to be safely moved greater distances. All neuro-psychiatric shock patients should be sent from the collecting posts directly to the neuro-psychiatric diagnostic and treatment stations with the least possible delay.

One combination clearing station and a 60-bed surgical hospital should be provided for each 15,000 to 25,000 of the population in larger cities. This type of installation would be expected to take only the very seriously injured who would require immediate medical and surgical treatment before they could be safely moved to installations further away from the scene of the disaster.

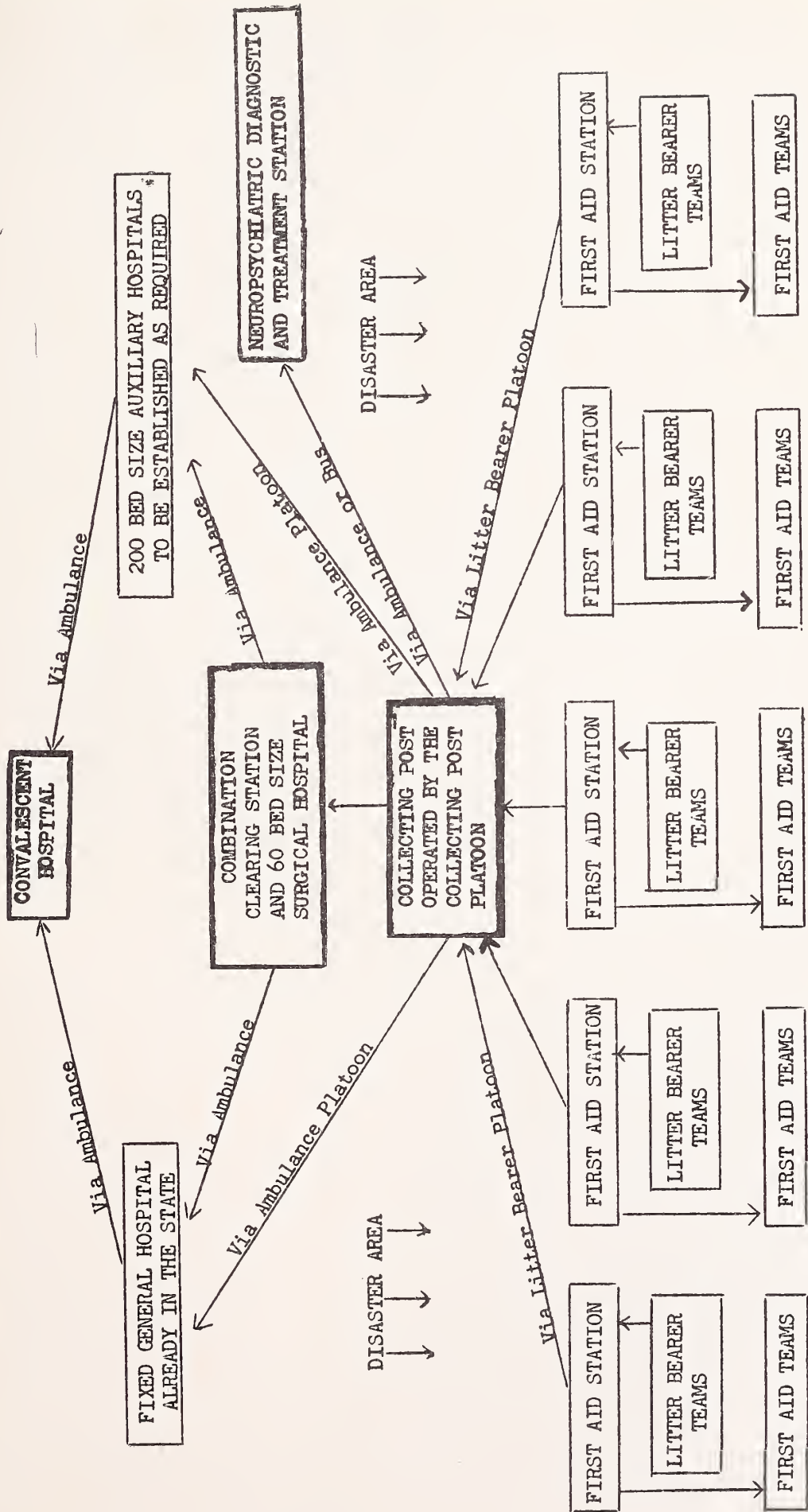
The number of neuro-psychiatric stations and of auxiliary hospitals that would be required would be directly dependent on the total number of disaster victims who would require treatment or hospitalization in these two types of installations. Furthermore, the number of convalescent hospitals to be established will be dependent on the bed capacity of said installations and on the number of disaster victims who will eventually require convalescent treatment and care.

Tables of Organization and Equipment are in the process of being established for each of the units designated above in the Chain of Evacuation but have not been completed as yet. However, it is expected that they will have been finished and approved in time for publication in the next issue of THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION.

Pearl R. Fisher, R. N., President of the Maine Hospital Association appointed a Committee on Emergency Civilian Medical Defense on January 16, 1950. Named to this Committee were: Donald M. Rosenberger, Chairman, Director — Maine General

CHART #1

MEDICAL CHAIN OF EVACUATION FOR CASUALTIES FROM LARGE DISASTER AREAS IN MAINE CITIES



Note: Arrows indicate the direction of flow and possible ultimate destination of casualties.

Hospital, Portland; Frank C. Curran, Director — Eastern Maine General Hospital, Bangor; Dean Fisher, M. D., Director — Central Maine General Hospital, Lewiston; Frank Bosquet, Director — Augusta General Hospital, Augusta; and Mrs. Mary Morris, Miles Memorial Hospital, Damariscotta. This Committee on Emergency Civilian Medical Defense of the Maine Hospital Association has been coöperating in every possible way with the Committee on Emergency Civilian Defense of the Maine Medical Association; and as a result of the combined efforts of these two committees, the majority of the general hospitals within this state have already drawn up and approved "Standard Operational Procedures" which will be followed in event said hospitals are obliged to admit and treat large numbers of disaster victims. At the present time, members of the above mentioned two committees are working out the details for a Table of Organization and Equipment for a combination clearing station and 60-bed surgical hospital which would be expected to operate at the outskirts of a large disaster area and for 200-bed auxiliary general hospitals that might need to be established in summer hotels or other similar installations outside the actual disaster area in order that an adequate number of hospital beds be made available in event the number of civilian casualties was sufficiently large.

At the request of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association, the active staffs of many of the general hospitals throughout the state have already designated three and four men medical-surgical teams that would serve in the combination clearing stations and surgical hospitals and in the auxiliary general hospitals that might be required in event of a serious disaster within Maine. It is hoped that the Committee on Emergency Civilian Medical Care of the Maine Hospital Association may be willing to assume responsibility for organizing the non-professional personnel that will be required to operate the combination clearing station-surgical hospital units and the auxiliary general hospital units enumerated above. Detailed Tables of Organization and Equipment for these two types of units will be published in an early issue of THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION.

Velma Haley, R. N., President of the Maine State Nurses' Association, appointed a committee on Civil Defense at the annual meeting held in October of this year. Named to this committee were: Margaret Y. Hodgkins, Cape Elizabeth, Chairman; Mrs. Ruth A. Evans, R. N., Presque Isle General Hospital, Northern District; Josephine Clough Philbrick, R. N., Eastern District, Bangor; Annie B. Mason, Lewiston, Central District, and Mrs. Leo McDermott, R. N., Portland, Western District. This committee is expected to advise the State Civil Defense

and Public Safety Director and his #3 Deputy State Director on matters pertaining to the participation of the members of the Maine State Nurses' Association in Civil Defense Activities at the State, County and Local Levels. The Maine State Nurses' Association has already held a panel discussion on Civil Defense at their October, 1950, meeting; and this organization plans to send a memorandum to each registered nurse in Maine asking her to signify if she will be willing to serve in some capacity in the Civil Defense Organization. Margaret Y. Hodgkins, Chairman of the Committee on Civil Defense of the Maine State Nurses' Association attended a program of training for professional nurses in the Nursing Aspects of Atomic Warfare given by the Atomic Energy Commission and the Public Health Service at the AEC Laboratory in Rochester, N. Y., on November 13-17, 1950. Upon her return, Mrs. Hodgkins has proposed the following educational program for nurses:

"To better implement a similar course of instruction for Nurses in Maine it would appear expedient to form an advisory committee composed of at least the following groups: League of Nursing Education, Maine State Nurses' Association, State Public Health Nursing Division, Industrial Nursing Association, American Red Cross, Hospital Association, and State Board of Nurse Registration."

"This sort of organization was looked upon favorably because it will enable us to get acceptance in the teaching contents and procedures at the top levels of the different categories of nursing. This would make it possible to teach selected persons in the nursing aspects of Atomic Warfare and these groups in turn would be able to instruct within their community or group."

The Maine Medical Association has a special "Committee on Blood Transfusions." Serving on this committee are the following members of the Maine Medical Association: Richard C. Wadsworth, M. D., Chairman, Bangor; Joseph E. Porter, M. D., Portland; Gilbert Clapperton, M. D., Lewiston; Joseph A. Donovan, M. D., Houlton; and John F. Reynolds, M. D., Waterville.

The Committee on Blood Transfusions has been making a special study of the blood bank problems in this state and have devoted considerable attention to the Civil Defense Aspects of blood procurement and distribution in time of disaster. An excellent plan has been devised by this Committee on Transfusions and approved by the Council of the Maine Medical Association on October 15, 1950. Interested readers are referred to Appendix "E" which is attached for the details of these recommendations made by the Committee on Blood Transfusions.

It will be apparent from the factual data presented above that much progress has already been made in

Civil Defense and Public Safety Planning at the State, County and Local levels in Maine. However, a great deal more work remains to be done especially at the county and city levels. The key personnel in the Civil Defense Organization must be trained and medical supplies and equipment required for the first aid posts, the collecting posts, the collecting companies, the clearing stations, the auxiliary hospitals, etc., must be procured and distributed to the appropriate installations. General Spaulding Bisbee, the State Civil Defense Director has included the sum of \$5,000 in his budget request to the Governor for the next fiscal year with which amount of money at present prices, it should be possible to procure the medical supplies needed to equip a substantial number of collecting posts and first aid posts within this state.

Mr. David H. Stevens, Director of the State Bureau of Health and Welfare has included in his budget request to the Governor sufficient funds to stock pile 1,000 units of dried plasma which could be made available for immediate use in event of a serious disaster which may occur in Maine.

Of course, actual stock piling of these medical supplies and equipment must await the actual appropriation of the necessary funds by either the State or by the Federal Government; and at this time it is impossible to know how long it may be before either State or Federal funds will be provided for this purpose. In any event it would appear now that the Congress of the United States could not be expected to pass the necessary Civil Defense legislation and appropriate the much needed federal funds much before January of 1951. In the meantime, it is hoped that some additional State funds may be made avail-

able for the purchase of much needed medical supplies and equipment.

The Committee on Emergency Civilian Defense of the Maine Medical Association wishes to take this opportunity to thank all members of the Maine Hospital Association, of the Maine Nurses' Association, of the State Department of Health and Welfare, of the American National Red Cross, of the Department of Education, of the faculties of the university, colleges and high schools, of the Maine Medical Association and all other persons who have been coöperating and whose continued support is earnestly requested in the months to come in order that the citizens of Maine may be assured of a Civil Defense and Public Safety Organization that will be able to cope satisfactorily with a disaster which might befall any part of this State at some future time.

BIBLIOGRAPHY

The following articles and reports have been published by the Committee on Emergency Civilian Defense of the Maine Medical Association:

1. What Every Maine Doctor Should Know About Civil Defense and Public Safety Planning. *J. Maine M. A.*, Vol. 41:76-83 (March, 1950).
2. What Every Maine Doctor Should Know About the Medical Aspects of Atomic Weapons and Atomic Warfare. *J. Maine M. A.*, Vol. 41:144-159 and 205-211 (May and June, 1950).
3. What Every Maine Doctor Should Know About the Defense Against the Atomic Bomb. *J. Maine M. A.*, Vol. 41:284-292 (July, 1950).
4. Report on Emergency Civilian Medical Defense to the Officers and Members of the Maine Medical Association. *J. Maine M. A.*, Vol. 41:223-224 (June, 1950).
5. Supplement Report on Emergency Civilian Medical Defense to the President and the House of Delegates of the Maine Medical Association at the Annual Meeting in June, 1950. *J. Maine M. A.*, Vol. 41: (November, 1950).

APPENDIX A

Office of Maine Civil Defense and Public Safety

STATE HOUSE
AUGUSTA, MAINE

August 21, 1950

In organizing the State Headquarters for the Civil Defense and Public Safety Agency, the State Director retains and controls the following divisions:

1. Air Raid Warning and Aircraft Warning Division.
2. Civil Air Patrol Division.
3. Administrative Division.
4. Training Division.
5. Planning Division.
6. Mobile Reserve Battalions.
7. General Liaison.
8. Filter Center.
9. Co-operation with American Red Cross.

August 21, 1950

TO: All County Directors of Civil Defense and Public Safety.

FROM: Spaulding Bisbee, Director, Civil Defense and Public Safety.

SUBJECT: Organization of State Headquarters.

1. This office has been working for some time on the organization of a staff so that the office of the State Director of Civil Defense will function in a more efficient manner.
2. Accordingly, for your information, as of this date the Governor has appointed as State Deputy Directors and as Assistant State Deputy Directors the following named gentlemen.

State Deputy Director No. 1

Howard H. Potter, Water Works Engineer of the Public Utilities Commission.

Business Address—State House, Augusta. Tel. Augusta 1200, Extension 222.

Residence—15 Blaine Avenue, Augusta. Tel. Augusta 1985.

He is responsible for:

- a. Communication Division.

b. Engineering and Public Works.

1. Water Supply. 2. Wastes Disposal. 3. Power. 4. Protective Construction. 5. Buildings and Roads. 6. Rescue
- c. Transportation.

1. Plans and Training. 2. Operations. 3. Carrier. 4. Highways.

State Deputy Director No. 2

Joseph A. P. Flynn, Director, State Fire Prevention of the Insurance Department.

Business Address—Vickery & Hill Bldg., Augusta. Tel. Augusta 1200, Extension 345.

Residence—Powhatan Street, Augusta. Tel. Augusta 3019 or 2727-W.

He is responsible for:

- a. Plant Protection. b. Fire Fighting (cities and towns) and Auxiliaries. c. Fire Alarm. d. Maintenance and Repair. e. Fire Prevention and Training. f. Police Services (cities and towns) and Auxiliaries.

1. Patrol. 2 Traffic. 3. Detention. 4. Records and Identification. 5. Personnel and Training. 6. Vice Control. 7. Juvenile Aid. 8. Mutual Aid.

g. Warden Services Division:

State Deputy Director No. 2 will consult with

- h. The Adjutant General, George M. Carter.

Business Address—Camp Keyes, Augusta. Tel. Augusta 1200, Extension 50.

Residence—41 School Street, Augusta. Tel. Augusta 2246. relating to co-operation between the State Guard and Civil Defense.

State Deputy Director No. 2 will consult with

- i. Forestry Commissioner, Albert D. Nutting.

Business Address—Highway Building, State House, Augusta. Tel. Augusta 1200, Extension 217.

Residence—17 College Heights, Orono. Tel. Orono 2085.

Room—48 Second St., Hallowell. Tel. Augusta 648-J. relating to co-operation between the Forestry Department and Civil Defense. His responsibility is the same as in ordinary times.

State Deputy Director No. 2 will consult with

- j. Chief, Maine State Police, Francis J. McCabe.

Business Address—66 Hospital St., Augusta. Tel. Augusta 1200, Extension 411 or Augusta 2411.

Residence—6 Southern Ave., Augusta. Tel. Augusta 857.

His responsibility is the same as in ordinary times. Additional recruiting, training and supervision of State Police reserves, publicly owned utilities, bridges, docks, etc.

State Deputy Director No. 2 will consult with

- k. Commissioner of Education, Harland A. Ladd.

Business Address—State House, Augusta. Tel. Augusta 1200, Extension 256.

Residence—20 Warren St., Hallowell. Tel. Augusta 2591-M.

relating to firemen's training under the Vocational Educational Division.

State Deputy Director No. 3

Charles W. Steele, M. D.

Business Address—472 Main Street, Lewiston, Me. Tel. Lewiston 4-8611.

Resident address and telephone same.

Assistant Deputy Directors No. 3

1. Albert W. Moulton, M. D.

Alternate Deputy Director No. 3 for State.

Business address—180 State Street, Portland. Tel. Portland 2-1329.

2. Professor Frederick B. Oleson.

Atomic Warfare—Radiological Detection in Civil Defense Planning.

Business address—University of Maine, Orono. Tel. Orono 441.

Residence—9D South Apartments. Orono.

3. Clarke F. Miller, M. D.

Medical Aspects of Atomic Weapons and Atomic Warfare in Civil Defense Planning.

Business address—Central Maine General Hospital, Lewiston. Tel. Lewiston 4-4011.

Resident address—778 Minot Ave., Auburn. Tel. Lewiston 4-4121.

4. Richard C. Wadsworth, M. D., Pathologist, Eastern Maine General Hospital.

Transfusions and Blood Banks in Civil Defense Planning.

Business address—Eastern Maine General Hospital, Bangor. Tel. Bangor 5644.

5. Margaret Y. Hodgkins, R. N.

Nursing Aspects of Civil Defense Planning.

Residence—Salt Tides, Cape Elizabeth, Maine. Tel. Portland 4-0567.

6. Mr. Donald Rosenberger, Director, Maine General Hospital.

Fixed and Auxiliary Hospitals in Civil Defense Planning.

Business address—Maine General Hospital, Portland. Tel. Portland 5-2154.

Residence—

7. M. C. Pettapiece, D. O.

Osteopathic Hospitals and Osteopathic Surgeons and Physicians in Civil Defense Planning.

Business address—Osteopathic Hospital, Portland, 335 Brighton Ave. Tel. 4-2641.

Residence address—55 Runnells St. Tel. 4-3561.

They are responsible for:

- a. Medical and Health Services.

- b. Public Health.

- c. Medical Care Services. 1. Casualty Medical Services. 2. Nursing Section. 3. Pharmacy. 4. Medical Practice. 5. Dental Services. 6. Physical Medicine. 7. Administration.

- d. Radiological Defense Division.

- e. Chemical Defense Division.

- f. Other Special Weapons Defense Division.

State Deputy Director No. 3 will consult with

g. Commissioner of Health and Welfare, David H. Stevens.

Business address—State House, Augusta. Tel. Augusta 1200, Extension 381.

Residence—18 Maple St., Hallowell. Tel. Augusta 1165 W. regarding:

1. Emergency Service same as ordinary service from this department.

2. After disaster occurs

(a) Milk and Food Sanitation. (b) Sanitary Control in Disaster Area. (c) Control and Spread of Communicable Diseases. (d) Mass Immunization Disaster Victims. (e) Supervision General Sanitation in Emergency Shelters, etc. (f) Furnish all necessary Biologicals.

State Deputy Director No. 3 will consult with

- h. Commissioner of Agriculture, A. K. Gardner.

Business Address—State House, Augusta. Tel. Augusta 1200, Extension 331 or 342.

regarding:

1. Diseases of animals transferable to humans. 2. Diseases of plants and vegetables detrimental to humans.

State Deputy Director No. 4

Joseph Williamson.

Business address—Macomber, Farr & Whitten, 284 Water Street, Augusta. Tel. Augusta 1365.

Residence—89 Western Ave., Augusta. Tel. 250-W.

Summer Residence—Hammonds Grove. Tel. 1488-22.

is responsible for:

- a. Evacuation, i. e., Planning and Execution of mass

movements of people (as distinguished from local intra-city clearance of a small area).

b. **Civilian War Aid.** Providing food, clothing, shelter and other necessary community aid under emergency conditions.

State Deputy Director No. 5

John S. S. Fessenden, Deputy Attorney General.

Business address—State House, Augusta. Tel. Augusta 1200, Extension 231 or 232.

Residence—East Winthrop. Tel. Winthrop 69-3.

is responsible for:

a. Legal and Legal Advising Agency.

b. Public Information. 1. Representative of the Press.

2. Representative of the Radio.

Associated with State Deputy Director No. 5

c. Commissioner of Education, Harland A. Ladd.

Business address—State House, Augusta. Tel. Augusta 1200, Extension 256.

Residence—20 Warren St., Hallowell. Tel. Augusta 2591-M.

responsible for First Aid Training in high schools.

Associated with State Deputy Director No. 5

d. Head of the State Association of Morticians responsible for:

1. Collection and Identification of the Dead; Preparation sb/gc

for Actual Disposal of the Bodies; Keeping Appropriate Records, etc.

All State Deputy Directors will address all communications and oral requests and instructions to the County Directors of the several counties, who in turn will communicate with their Deputy Directors.

All communications from State Deputy Directors will be signed as follows:

Spaulding Bisbee, Director

Civil Defense and Public Safety

By

State Deputy Director Nos. 1, 2, 3, 4, or 5

All communications or inquiries from the several County Directors in answer to instructions or inquiries from the State Deputy Directors will be addressed to the State Deputy Director concerned.

The State Deputy Directors will file copies of all outgoing or incoming correspondence from the several County Directors with the State Director.

Conferences will be held by the State Staff when necessary.

Sincerely yours,

SPAULDING BISBEE, *Director,*
Civil Defense and Public Safety.

APPENDIX B

County and Deputy Directors

ANDROSCOGGIN

County Director—J. Dennis Bruno, 115 Main St., Lewiston, Maine. Tel. 2-9143.

Deputy Director No. 1—William J. Rogers, 530 Turner St., Auburn, Maine. Tel. 2-6580.

Deputy Director No. 2—William Smith, 252 Turner St., Auburn, Maine. Tel. 2-6833.

Deputy Director No. 3—Dr. Ralph A. Goodwin, 56 Denison St., Auburn, Maine. Tel. 2-8481.

Deputy Director No. 4—Thomas Fahey, 101 Pine St., Lewiston, Maine. Tel. 2-0437.

Deputy Director No. 5—Patrick F. Malia, Androscoggin County Clerk of Courts, Auburn, Maine. Tel. 2-3801. Residence: 37 Shawmut St., Lewiston, Maine. Tel. 2-6143.

AROOSTOOK

County Director—Charles P. Helfenstein, Caribou Publishing Company, Caribou, Maine. Tel. 3251.

Deputy Director No. 1

(Northern)—Vernon Johnston, Frenchville, Maine. Tel. (Home) 2541. (Office) 2181.

(Central)—Hayden Anderson, Office of School Supt., Caribou, Maine. Tel. 6311. Res.: 13 Page Avenue. Tel. 2-5071.

(Southern)—Wilfred Hannan, 30 Pleasant St., Houlton, Maine. Tel. 2929

Deputy Director No. 2

(Northern)—George Rice (tentative), Rice Furniture Co., Main St., Madawaska, Maine. Tel. 18.

(Central)—Granville Seamans, Limestone, Maine. Office: Fire Station. Tel. 3111. Residence: Foster Avenue. Tel. 4311.

(Southern)—Fred Sylvester, Houlton, Maine. Office: Market Square. Tel. 2141. Residence: 18 Park St. Tel. 6149.

Deputy Director No. 3

(Northern)—James Hoyt, Fort Kent, Maine. Office: State Liquor Store, Main St. Tel. 114-12. Residence: Main St. Tel. 133.

(Central)—Lewis G. Hersey, Fort Fairfield, Maine. Hersey Chevrolet Co., Main St. Tel. 3541. Residence: E. Riverside St. Tel. 5661.

(Southern)—Dr. Clyde I. Swett, Island Falls, Maine. Office or Home: Tel. 6. Hospital: Tel. 32. Private Camp: Tel. 61-12.

Deputy Director No. 4

(Northern)—Ed Thibeault, Lafayette St., Van Buren, Maine. Tel. (Office), 323. (Home) 323.

(Central)—Fred McConnell, Presque Isle, Maine. Office: 9 Church St. Tel. 8632. Residence: 45 and 3rd St. Tel. 2-7911.

(Southern)—Herschel Good, Monticello, Maine. Tel. (Office), Houlton 8532. (Home) Houlton 9534.

Deputy Director No. 5

(Northern)—Arthur J. Nadeau, Jr., Fort Kent, Maine. Office: Main St. Tel. 64. Residence: Alfred St. Tel. 64.

(Central)—Dana Weaver, Mars Hill, Maine. Office: Main St. Tel. 2821. Residence: 14 Hillside Ave., Presque Isle, Maine. Tel. 9-1896.

(Southern)—George Barnes, Houlton, Maine. Office: Water St. Tel. 3301. Residence: 31 Pleasant St. Tel. 2482.

CUMBERLAND

County Director—Col. Charles L. Stephenson, County Court House, 142 Federal St., Portland 3, Maine. Tel. 3-5481. Residence: Basin Point, South Harpswell, Maine. Tel. Harpswell 62-11.

Deputy Director No. 1—Col. Albert W. Waterman, 2 Fairlawn Ave., South Portland, Maine. Tel. Portland 4-9376.

- Deputy Director No. 2*—Austin Alden, Gorham, Maine. Tel. (Home) 2722.
- Deputy Director No. 3*—Col. O. H. Stanley, MC, USA (Ret'd), 7 Jordan Ave., Brunswick, Maine. Tel. Brunswick 997-W.
- Deputy Director No. 4*—Mr. Elmer W. Shedley, Portland, Maine.
- Deputy Director No. 5*—Col. Alexander LaFleur, Atty. Office: 443 Congress St., Portland, Maine. Tel. Portland 3-2712. Residence: 177 Glenwood Ave. Tel. Portland 3-5274.

FRANKLIN

- County Director*—Delmar Johnson, Farmington, Maine. Tel. 2075.
- Deputy Director No. 1*—
- Deputy Director No. 2*—Louis Wright, Chesterville, Maine. Tel. 2233.
- Deputy Director No. 3*—Everett Masterman, Wilton, Maine. Tel. 230-3.
- Deputy Director No. 4*—Lynn Miller, North Jay, Maine. Tel. 253-13.
- Deputy Director No. 5*—Russell Richmond, Phillips, Maine.

HANCOCK

- County Director*—Seth E. Libby, 39 Cottage St., Bar Harbor, Maine. Tel. (Residence) 937-W. (Office) 858.
- Deputy Director No. 1*—John F. Harriman, 270 Main St., Ellsworth, Maine. Tel. 476-M1.
- Deputy Director No. 2*—Norman M. Dyer, 54 State St., Ellsworth, Maine. Tel. 21.
- Deputy Director No. 3*—Dr. James H. Crowe, 121 Main St., Ellsworth, Maine. Tel. (Residence) 240-R. (Office) 240-W.
- Deputy Director No. 4*—William Fenton, 86 Main St., Bar Harbor, Maine. Tel. (Residence) 336-W. (Office) 240.
- Deputy Director No. 5*—Atherton W. Fuller, Jr., 90 Main St., Ellsworth, Maine. Tel. (Residence) 105-M1. (Office) 73.

KENNEBEC (Southern)

- County Director*—W. E. Chase, 137 Sewall St., Augusta, Maine. Tel. 3672-M. Office: State House. Tel. 1200, Ext. 444.
- Deputy Director No. 1*—Raymond D. Morrison, 19 Cushman St., Augusta, Maine. Tel. 2123. Business: CMP Co., 9 Green St. Tel. 1780.
- Deputy Director No. 2*—George L. Fowler, High St., Winthrop, Maine. Tel. Winthrop 324.
- Deputy Director No. 3*—Dr. Harold E. Small, 31 Grove St., Augusta, Maine. Tel. (Home) 2322-R. (Office) 2322-W.
- Deputy Director No. 4*—
- Deputy Director No. 5*—Henry Heselton, 12 Plaisted St., Gardiner, Maine. Tel. (Home) 685-W. (Office) Brunswick Ave., Gardiner. Tel. 606-W.

KENNEBEC (Northern)

- County Director*—John Smedberg, 9 Gray St., Waterville, Maine. Tel. (Residence) 1170. Business: Internal Revenue, Waterville, Maine. Tel. 995.
- Deputy Director No. 1*—Charles F. Jones, 27 Burleigh St., Waterville, Maine. Tel. (Home) 719-M. (Office) 1069.
- Deputy Director No. 2*—Alfred Poirier, 13 Western Avenue, Waterville, Maine. Tel. (Home) 810. (Office) 1880.

- Deputy Director No. 3*—Vincent Audet, 2 Preston St., Waterville, Maine. Tel. (Home) 644-W. (Office) 243.
- Deputy Director No. 4*—James Glover, 60 Roosevelt Ave., Waterville, Maine. Tel. (Home) 2839. (Office) 620.
- Deputy Director No. 5*—A. Raymond Rogers, 12 Hazelwood Ave., Waterville, Maine. Tel. (Home) 2045. (Office) 1156.

KNOX

- County Director*—Brig. Gen. Kenneth P. Lord, 62 Union St., Rockland, Maine. Tel. 1698.
- Deputy Director No. 1*—Capt. Nathan W. Bard, USN (Ret'd), Spruce Head, Maine. Tel. Rockland 439-W1.
- Deputy Director No. 2*—Col. Seward L. Mains, USA (Ret'd), South Thomaston, Maine. Tel. Rockland 167-W3.
- Deputy Director No. 3*—Dr. C. Harold Jameson. Office: 463 Main St., Rockland, Maine. Tel. Rockland 1196. Residence: Chestnut St., Camden, Maine. Tel. Camden 2153.
- Deputy Director No. 4*—Duties allocated to Deputy No. 2 during organization phase.
- Deputy Director No. 5*—Duties assumed by the Director, assisted by the county officials, during organization phase.

LINCOLN

- County Director*—Col. Raymond Dunning, Newcastle, Maine. Tel. Damariscotta 115.
- Deputy Director No. 1*—Stanley G. Waltz, Waldoboro, Maine. Tel. 127-23.
- Deputy Director No. 2*—Spencer A. Gay, Damariscotta, Maine. Tel. 162-2.
- Deputy Director No. 3*—Dr. Rufus E. Stetson, Damariscotta, Maine. Tel. 20.
- Deputy Director No. 4*—Robert H. Reny, Damariscotta, Maine. Tel. 136-2.
- Deputy Director No. 5*—Linwood A. Pratt, Damariscotta, Maine. Tel. 235-2.

OXFORD

- County Director*—Col. Robert P. Millett, East Sumner, Maine. Tel. 2243.
- Deputy Director No. 1*—Capt. James Lassiter, Bethel, Maine. Tel. 68-7.
- Deputy Director No. 2*—Louis Lamont, East Hiram, Maine.
- Deputy Director No. 3*—Dr. G. G. Defoe, Dixfield, Maine. Tel. 31.
- Deputy Director No. 4*—Ralph E. Lambert, 35 Parris St., Norway, Maine. Tel. (Home) 302. (Office) 775.
- Deputy Director No. 5*—Shelton C. Noyes, 114 Congress St., Rumford, Maine. Tel. (Home) 467-J. (Office) 1190.
- Assistant County Director*—Capt. Frank A. Bean, R. F. D. No. 1, Bryant Pond, Maine.

PENOBSCOT

- County Director*—Col. Francis Fuller, 288 Main St., Orono, Maine. Tel. 8346.
- Deputy Director No. 1*—Frank M. Taylor, 10 Kell St., Orono, Maine. Tel. 2048.
- Deputy Director No. 2*—Lester H. McIntire, R. F. D. No. 2, Bangor, Maine. Tel. (Home) 7155. (Office) 7391.

- Deputy Director No. 3*—Col. Harry Butler, M. D., 77 Broadway, Bangor, Maine. Tel. (Home) 2-1769. (Office) 9868.
- Deputy Director No. 4*—Kenneth S. Ludden, 18½ Blake St., Brewer, Maine. Tel. 6536.
- Deputy Director No. 5*—John T. Quinn, 275 Pine St., Bangor, Maine. Tel. (Home) 7211. (Office) 6808.

PISCATAQUIS

- County Director*—Robert I. Roberts, 39 Pleasant St., Dover-Foxcroft, Maine. Tel. 266-2.
- Deputy Director No. 1*—Walter G. Leland, East Sangerville, Maine. Tel. Dover 407-11.
- Deputy Director No. 2*—Harold E. True, Dover-Foxcroft, Maine. Tel. 215.
- Deputy Director No. 3*—Everett Fairbrother, Dover-Foxcroft, Maine. Tel. 58.
- Deputy Director No. 4*—Dr. J. B. Curtis, 10 High St., Milo, Maine. Tel. 73.
- Deputy Director No. 5*—

SAGadahoc

- County Director*—Roy G. Stewart, 129 Front St., Bath, Maine. Tel. 1535-M.
- Deputy Director No. 1*—William P. Mennealy, 49 Meadow Way, Bath, Maine. Tel. 1925. Office: % Bell Tel. & Tel. Co. Tel. 9950.
- Deputy Director No. 2*—Stanley G. Turner, 98 Bedford St., Bath, Maine. Tel. 1793-M. Office: Bath Iron Works. Tel. 1400.
- Deputy Director No. 3*—Ralph Mittendorf, City Manager, Bath, Maine. Tel. 1130. Residence: 602 Washington St. Tel. 428.
- Deputy Director No. 4*—Frank Fortier, 100 South St., Bath, Maine. Tel. 915.
- Deputy Director No. 5*—

SOMERSET

- County Director*—Roy G. Sylvester, Skowhegan, Maine. Tel. 2375.
- Deputy Director—Communications* including air raid warning, aircraft observers, and warden services: Lyndall T. Smith, East Madison Rd., Skowhegan, Maine. Tel. (Home) 486. (Office) 2134.
- Deputy Director—Transportation* including evacuation and civil war raid division: John E. Carman, 20 Main St., Skowhegan, Maine. Tel. (Home) 2147. (Office) 29003.
- Deputy Director—Engineering* including public works, rescue, mutual aid and mobile reserves: Charles C. Heselton, Jr., 400 Madison Ave., Skowhegan, Maine. Tel. (Home) 405. (Office) 606.
- Deputy Director—Public Information* including training, administrative and legal services: Robert E. Fecteau, 40 Winter St., Skowhegan, Maine. Tel. (Home) 29247. (Office) 368.
- Deputy Director—Special Weapons Defense* including radiological, chemical and special weapons defense: Ivan E. Adams, West Front St., Skowhegan, Maine. Tel. (Home) 2898. (Office) 2070.

Deputy Director—Protective Services including police plant protection and fire services: Lt. Sherman W. Hallowell, Island Ave., Skowhegan, Maine. Tel. (Home) 559. (Office) 359.

Deputy Director—Medical and Health Services: Dr. Edwin M. Lord, 198 Madison Ave., Skowhegan, Maine. Tel. 29273.

Alternate—Dr. Albert J. Bernard, 198 Madison Ave., Skowhegan, Maine. Tel. (Home) 719. (Office) 691.

Deputy Director—Fire Protection Services: Howard Rowell, 284 Madison Ave., Skowhegan, Maine. Tel. (Home) 2537. (Office) 8167.

WALDO

- County Director*—Mayor Sherman C. English, 19 Church St., Belfast, Maine. Office: 43 Congress St. Tel. 46-R.
- Deputy Director No. 1*—Merton J. Wyman, City Manager, City Building, Belfast, Maine. Tel. 699.
- Deputy Director No. 2*—Aubrey Ramsdell, Chief, Fire Department, Belfast, Maine. Tel. 58W, 58R, 105. Dir. Belfast Water Works. Residence: 22 High St. Tel. 413W. Summer Residence: Swan Lake. Tel. 83M4.
- Deputy Director No. 3*—Dr. John A. Caswell, 7 Cedar St., Belfast, Maine. Tel. 283.
- Deputy Director No. 4*—Capt. Haskell Todd, High St., Belfast, Maine.
- Deputy Director No. 5*—Charles Gesner, Church St., Belfast, Maine.

WASHINGTON

- County Director*—Frank T. Higgins, % Merrill Trust Co., Machias, Maine. Tel. (Home) 277. (Office) 98.
- Deputy Director No. 1*—Frank Nickerson, Machias, Maine. Tel. 75.
- Deputy Director No. 2*—Lester Young, E. Machias, Maine. Tel. (Home) 293-11. (Office) 255.
- Deputy Director No. 3*—Dr. O. F. Larson, Machias, Maine. Tel. 105.
- Deputy Director No. 4*—Byron McPheters, Machias, Maine. Tel. (Home) 377. (Office) 226.
- Deputy Director No. 5*—Wesley Vose, Machias, Maine. Tel. (Home) 173. (Office) 153.

YORK

- County Director*—Col. Harry A. Mapes, 1734 Main St., Springvale, Maine. Tel. 778-W, 778-R, 779.
- Deputy Director No. 1*—Carleton Foss, 9 Chadwick Place, Biddeford, Maine. Tel. 3-3805.
- Deputy Director No. 2*—Harry E. Quackenbush, Limerick, Maine. Tel. 72-3.
- Deputy Director No. 3*—Wendall Lever, Kimball St., Extension, Sanford, Maine. Tel. 362.
- Deputy Director No. 4*—Adm. Herbert B. Knowles, USN (Ret'd), RFD No. 1, South Berwick, Maine. Tel. Portsmouth 2817W3.
- Deputy Director No. 5*—H. D. Walley, Main St., Kennebunkport, Maine. Tel. 578-2.

APPENDIX C

Chart for Organization in Counties

County Commissioners

Upon whom the responsibility for organization and carrying out the principles of Civil Defense depends.

Director of Civil Defense

The Director should be an individual trained in the technique of civil defense operations immediately under the County Commissioners to advise them, assist them, and act on their behalf, to carry out the civil defense mission in time of emergency. The local Director of Civil Defense should be a member of the County Commissioners' staff, provided for by law. He should organize, train, and keep in a state of readiness those purely Civil Defense agencies which do not function in municipal government in normal times, and should co-ordinate from a civil defense standpoint the extra training programs and preparedness required for the assumption of addition civil defense duties in emergency by existing municipal agencies.

In time of peace he should be responsible for the planning and preparation for civil defense operations which take place in time of emergency. He should advise the County Commissioners on all pertinent matters and be prepared to appear before them on all matters concerning civil defense.

In time of emergency, properly declared and proclaimed, and under the direction of the County Commissioners and responsible to the County Commissioners and the people, he should assume actual direction of all civil defense operations.

One of the responsibilities of the Director of Civil Defense should be to select a control center, which will be the command post for civil defense operations in time of emergency. It should be the focal point to all civil defense communications and orders. It should likewise be the point to which all air raid warnings should come and from which air warning information would be disseminated as indicated by the needs of civil defense.

In time of emergency the Director should direct the operations of the Civil Defense organization from the Control Center. It is suggested that he be assisted by five Deputy Directors. During operations the operational Division Chiefs, or their representatives, should be at the Control Center with the Director of Civil Defense.

The use of all Mutual Aid and Mobile Reserve Battalions furnished the city from without should be directed by the Director of Civil Defense from the Control Center. Likewise the matter of the furnishing of such groups from the city to be dispatched elsewhere at the request, or direction, of responsible State authorities, should be handled in the Control Center by the local Director of Civil Defense.

Great care should be exercised in selecting a local Director of Civil Defense and his duties. They should have the complete confidence of the community. They must be men possessing experience in dealing with emergencies and men who, by reason of such experience, and by training and temperament, can maintain their ability to direct operations under the most trying circumstances.

Deputy Director No. 1

Communications Division
Transportation Division
Air Raid Warning and Aircraft Observers Division
Engineering and Public Works Division
Rescue Division

Deputy Director No. 2

Plant Protection Division
Fire Services Division
Warden Services Division
Police Services Division
Mutual Aid and Mobile Reserve Division

Deputy Director No. 3

Radiological Defense Division
Other Special Weapons Defense Division
Chemical Defense Division
Medical and Health Services Division

Deputy Director No. 4

Evacuation Division
Civilian War Aid Division

Deputy Director No. 5

Legal Division
Administration Division
Public Information Division
Training Division

APPENDIX D

Deputy Directors of Civil Defense

The local Director of Civil Defense should be assisted during operations by five Deputy Directors in such manner as would be prescribed by him. For example, designated Deputy Directors would relieve the Director and act in his stead during periods when he is absent from the Control Center. Moreover, periods of emergency may arise for days, or even weeks, at a time, which will necessitate the relief of the Director from time to time in order that he might have necessary periods of rest. Furthermore, it may be expedient for the Director to designate certain Deputy Directors to go to the scene of extremely large incidents and exercise co-ordination over all activities in the name of and for the Director. Such Deputy would not direct the technical services in a manner to supplant their normal commanders.

In addition to these duties, each Deputy Director would have administrative supervision over certain divisions of civil defense in the local organization, the activities of which are generally allied or similar in nature. A suggested grouping of the divisions under the five Deputy Directors follows:

Deputy Director No. 1 exercising administrative supervision over the Communications, Engineering and Public Works, Rescue, Transportation, and Air Raid Warning and Aircraft Observer Divisions. A description of the missions of these divisions is set forth below:

Communications. Should embrace all forms of communication, namely, telephone, telegraph, radio, emergency messenger service, and all other emergency means. Existing telephone, telegraph and radio facilities and services should be used insofar as is possible, but provision should be made for emergency communication services as alternate means of transmitting messages when regular facilities are put out of working order. Such emergency means would include mobile radio-telephones, the use of amateur radio services, and any other possible means that could be developed. All existing communication facilities should be maintained by their owners. Such expanded facilities and services as might be required should be provided by the owners under coordination of the Chief of the Communications Division. Repair work and restoration of services should likewise be done by the companies themselves, using their own staffs and

technical personnel for this purpose, supplemented if need be by such assistance as they may require in the form of workmen to be supplied them by Civil Defense.

Engineering and Public Works. Should be charged with the responsibility of co-ordinating existing engineering and utilities services, expanded or adapted to meet emergency conditions. It would also have the responsibility for sanitary engineering measures affecting water, milk and food supplies, housing, sewage and wastes disposal, and for passive defense measures, including protective construction, blackout methods and camouflage, as the requirements of war indicate the necessity for such measures.

This division may be divided into five branches, namely, Water Supply, Wastes Disposal, Power, Protective Construction, and Buildings and Roads, as follows:

a. Water Supply. The normal source of water for a city should, of course, be used to the fullest extent under emergency conditions. Likewise, the normal purification operations should continue. However, several factors must be recognized in connection with the procurement and distribution of water. The system may be heavily taxed by the demands of fire-fighting. Moreover, the probability of loss of the waterworks, by reason of its being a prime enemy target, must be taken into consideration. Emergency sources of water should be explored and made available to the fullest extent, both for fire-fighting purposes, and for drinking and sanitary purposes. This would include bodies of static water—lakes and ponds, and wells. It should be noted that there are many industrial installations and buildings which have their own privately owned and operated wells. Inasmuch as water from emergency sources will not in most instances be potable, emergency steps must be taken for its purification. This could be done by the use of emergency purification methods and units.

b. Wastes Disposal. Existing city facilities for the disposal of sewage, garbage and other waste should be used insofar as is possible. If these services are not impaired, there is no reason why they cannot operate with their normal staffs or with but slight augmentation of labor personnel. However, if such normal services are put out of working order, it is vital to have workable methods available for the disposal of sewage and garbage which can be put into effect immediately. This may involve burial of such wastes or it may involve chemical disposal of sewage.

c. Power. Existing electric and gas facilities and services should be used insofar as is possible. However, all sources of emergency power should be explored and put to use to supplement or replace normal gas and electric facilities as occasion demands. Such sources of power would be found in the privately owned steam, gasoline or Diesel operated stand-by power production facilities found in connection with hospitals, business houses, and industrial concerns. Consideration should be given to the possibility of using immobilized locomotives, motor trucks, or steamships, as emergency sources of power. Repair work and restoration of gas and electric facilities should be done by the utilities companies, using their own staffs and technical personnel for this purpose, supplemented as necessary by such assistance as they may require in the form of workmen to be supplied them by Civil Defense.

d. Protective Construction. It will be a function of the Office of Civil Defense to furnish technical guidance and advice on shelter construction policy. Nevertheless, local authorities should promptly initiate surveys of existing facilities suitable for conversion into community protection facilities, and when appropriate, prepare plans for the construction and maintenance of shelters, both public and private.

e. Buildings and Roads. This Branch should have the responsibility of making rapid preliminary inspections of structures left standing to determine their fitness for further use. It should have the responsibility of temporary or preliminary restoration of such damaged structures as have utilization value in order that they may be

put back into use promptly. It should also have responsibilities pertaining to restoration of roads and bridges. In this connection it should be noted, however, that the long range program of rebuilding a damaged city is not within the purview of civil defense activities. The activity contemplated here is of emergency nature designed to fill immediate existing needs.

Rescue. Rescue of persons entrapped in wreckage is an engineering operation, requiring personnel with a high degree of skill and experience in the handling of heavy rigging and machinery and shoring equipment. Such highly trained and experienced personnel should be supplemented with large numbers of common laboring type personnel. The best sources of the skilled engineering personnel lie in organized wrecking companies and in civil engineering and construction firms to be found within the city, and such type personnel should be enrolled for the operations required. Because of the equipment and experience required, this Division should also be concerned with the removal of rubble from the streets, and for the repairing of installations which must be reopened as soon as possible, and with the demolition and removal of standing structures rendered dangerous because of fire or bomb blasts.

Transportation. It is recognized that no transportation office or bureau is normally found within the average city organization (except for those cities which have municipally owned public transportation lines), and it is therefore necessary to provide an organization for the handling of Civil Defense emergency transportation from sources not within the governmental structure.

One of the most important factors to consider in the matter of transportation is control and proper dispatching to insure that maximum use is made of all vehicles and that the distribution and allocation of vehicles to using agencies is properly made. This function should be centered in the Transportation Division to insure that overall properly coordinated control is exercised over all transportation facilities. Street railway service and organized bus service should be maintained insofar as existing conditions permit. This holds true also for every other form of transportation. However, as required by existing conditions, improvisation should be made from whatever vehicles of whatever types are available to the Chief of Transportation. If the situation does not permit the operation of existing bus lines on an organized basis, the buses should be used individually to supplement whatever emergency systems are available.

The Transportation Division might be sub-divided into branches as follows:

a. Plans and Training. Should implement the program of training as laid down and, in conjunction with the Training Division, insure maximum coverage of the local population. This Branch should also be responsible for transportation planning and, in addition, maintain an inspection section to see that the transportation aspects of the training program are properly carried out.

b. Operations. Should comprise four sections, namely, Dispatching, Traffic, Mass Evacuation, and Service. This Branch should generally be concerned with the emergency movement of essential passengers and freight of all types by all available means. It would handle and transport all intra-city movements of passengers and freight and be concerned with the mobilization of all transportation locally available. It would also be responsible for all long distance and inter-city movements of freight and passengers and the handling of traffic management responsibilities of the Division.

c. Carrier. Should be responsible for seeing that the Transportation Division operates in a manner consistent with the capabilities of the various forms of transportation, and would act as technical advisor in all forms of transportation.

Air Raid Warning and Aircraft Observers. Should have the responsibility for the dissemination of air raid warning information and of observing, detecting, and reporting enemy aircraft.

Deputy Director No. 2 exercising administrative supervision over the Plant Protection, Warden Services, Fire Services, Police Services, and Mutual Aid and Mobile Reserve Divisions. A description of the missions of these divisions is set forth below:

Plant Protection. The operation of special measures of techniques required for the civil defense protection of manufacturing and non-manufacturing facilities, utilities, institutions, and private enterprise in the areas which are assigned to civil defense; and co-ordination with management of plants assigned to other agencies for protection.

Warden Services. The Wardens should act as the bond between the neighborhood and the local Civil Defense headquarters. They should lend their assistance whenever and wherever needed to other divisions in the Civil Defense organization, principally in the matter of furnishing their detailed personal knowledge of the physical layout of the neighborhood and the characteristics of its inhabitants.

By means of their training and leadership, they should be in a position to bring the principles of civil defense home to every householder, and, in this connection, they should be of invaluable assistance to the Training Division in the implementation of its programs.

Moreover, they would compile and record detailed information and data on the neighborhood and its inhabitants, and make it available to higher authority. They should be responsible for carrying out in the neighborhood all approved civil defense programs and policies.

Fire Services. The existing fire department should form the nucleus around which the Fire Services Division should be organized. This division should be responsible for the combating and extinguishing of fires and for all activities and operations in connection therewith. It might be subdivided into five branches, consisting of Fire Fighting, Fire Alarm, Maintenance and Repair, Fire Prevention, and Training, as follows:

a. **Fire Fighting.** Should be concerned with the combating and extinguishing of fires of all kinds. It should be schooled in fighting fires which may result from non-conventional causes brought about by the use of new types of incendiary weapons, as well as those arising from ordinary causes.

b. **Fire Alarm.** The fire alarm system must be kept in workable operating condition insofar as possible under emergency conditions. In addition, a system of emergency transmission of fire signals should be set up in event the normal fire signal system is put out of commission.

c. **Maintenance and Repair.** Should keep all apparatus and equipment in workable state and should be charged with the procurement of new equipment and apparatus and the supplies necessary for their operation. It should also be responsible, in conjunction with the Water Supply Branch of the Engineering and Public Works Division, for keeping available static water supplies and emergency sources of water for fire-fighting purposes.

d. **Fire Prevention.** Should have charge of inspection and investigation of potential sources of fire hazards and the remedying in rectification thereof.

e. **Training.** Should provide special courses of instruction for regularly enrolled firemen and fire officers in the techniques required for the fighting of fires caused by non-conventional means, and for the basic and special fire fighting training of such emergency personnel as may be necessary to supplement the regular forces of the Fire Department. This branch should also provide the techniques for self-help training.

Police Services. The existing Police Department should form the nucleus around which the Police Services Division should be organized. This Division is concerned with the restoration and preservation of the public order and with the detection of crime and the control of traffic and all activities and operations in connection therewith. The special civil defense functions should be integrated into the following functions more or less common to all police departments:

a. **Patrol.** Should be responsible for the protection of life and property and the preservation of the public peace and order. This function is a duty of all police, but the number and distribution of patrol personnel make this operation the basic element for this general service. They apprehend violators of every type. They should also assist in unexploded bomb reconnaissance and related duties, should stand guard and compose anti-looting patrols; should conduct preliminary criminal investigations, should transmit and enforce evacuation orders, and should perform traffic control and regulation functions, as required.

b. **Traffic.** Should be concerned with the control and regulation on the streets and highways of vehicular and pedestrian traffic. Its function is to minimize delays, congestion and conflicts, to achieve orderly, efficient traffic movements. Its personnel might also transmit evacuation orders, executing the above functions in connection with evacuation and other Civil Defense operations, and establish and enforce highway traffic control through priority and dispatch systems, performing patrol functions as required.

c. **Criminal Investigation.** Should be responsible for conducting major crime investigations and co-ordination with military and other federal authorities in matters concerning espionage, sabotage and subversive activities.

d. **Detention.** The problem of detention is one of considerable magnitude during emergency conditions. It should be met by providing suitable safe and secure places where persons may be detained for the public good until such time as conditions permit their release or circumstances warrant their trial. Places of detention should be provided to accommodate such persons temporarily deprived of their liberty.

e. **Records and Identification.** Should maintain departmental records including those concerned with the property placed in the custody of the police. It should afford means through which bombing casualties and persons and property are identified and the latter returned to their homes and owners respectively. It would also administer identification procedures, including issuance of passes and permits.

f. **Personnel and Training.** Should procure regular and auxiliary personnel and provide necessary training with respect to those functions and duties peculiar to Civil Defense.

g. **Communications.** Should utilize all available commercial and inherent police communications systems in the transmitting of orders to operating personnel.

h. **Vice Control.** Should be concerned with control over alcoholic liquors and narcotics. Under conditions occasioned by enemy attack, it would participate primarily in assuring that stocks of drugs, and of alcoholic liquors, are kept secure in the interest of maintaining the public peace and order.

i. **Juvenile Aid.** Should be concerned with crime prevention in co-ordination with welfare, services, looking after women and children whose personal situations have been affected by war disaster. It might also be utilized by other Civil Defense groups in post-raid periods in connection with evacuations and in locating members of families who have become separated.

j. **Auxiliary Police.** Should supervise the auxiliary police program. It should arrange training classes and exercises for auxiliary personnel. It should also develop a program to maintain morale, and should supervise disciplinary procedures. It should arrange for uniforming and equipping, and maintaining a pool from which auxiliary police may be assigned as their services are required.

k. **Procurement and Supply.** Should be charged with custody of property in the safekeeping of police pending return to owners, custody of property held as evidence, and with procurement and storage of equipment used in police operations, including police civil defense equipment.

1. Transportation. Should be responsible for provision and maintenance of police vehicular transportation.

m. Administration. Should be responsible for supervision of all Police Department business and provision of guidance in all matters not assigned elsewhere in the Department. This would include administrative matters relating to civil defense.

n. Public Information. Should be responsible for supervision of all matters involving the press and public relations of the Department; and the provision of guidance to personnel in their relationships with the public (similar services would be required, internally, in all civil defense police matters).

Mutual Aid and Mobile Reserve. Should prepare plans and evolve methods for the organization, activation, training and employment of Mobile Reserve Units from among existing local facilities, and be prepared to make recommendations to the Director of Civil Defense as to all matters concerning their general operations. It should also make plans and be prepared to make recommendations to the Director of Civil Defense concerning the use of such units from other areas. It should work in close co-operation with the State Civil Defense headquarters in the formulation and implementation of statewide plans of mutual assistance.

Deputy Director No. 3 exercising administrative supervision over the Radiological Defense, Chemical Defense, Other Special Weapons Defense, and Medical and Health Services Division. A description of the missions of these divisions is set forth below:

Radiological Defense. Radiological Defense is primarily concerned with the prevention and mitigation of those personnel injuries resulting from exposure to ionizing radiations. This is accomplished through the detection and avoidance of the radiological hazards resulting from atomic attack, and through the protection of personnel whose civil defense activities require their entry into radiologically hazardous areas. Local radiological defense operations are centered around the activities of two types of units composed of personnel trained in the special techniques of radiation detection and measurement.

The training of personnel in the techniques of radiological defense operations should be conducted by the Radiological Defense Division. The supply and maintenance of radiological defense equipment and material, particularly as it applies to radiation detection and measurement devices, is also a function to be conducted by this Division.

Chemical Defense. Chemical Defense is based on the application of chemical protective measures for and by the individual, and the organized activities of chemical detection and decontamination teams. Every person, in the event of a war gas attack, should have had training in the basic chemical defense measures for the individual, such as the wearing of the gas mask and personnel decontamination. Personnel in the chemical detection teams and the decontamination teams will require intensive training in their speciality. Persons in the related services of Civil Defense, such as the Firefighting, Police, and Engineering and Public Works Services, will require a certain amount of technical training in anti-chemical measures to a lesser degree than that given to the chemical defense units, in order to assist the Chemical Defense Division in nullifying the effects of war gas contamination. Detection of toxic gas and decontamination of the areas, installations, and physical equipment covered by the liquid chemical agents are two operational steps in offsetting or minimizing the effectiveness of the enemy use of war gas. Training of persons in the related services, and of persons unaffiliated with activities of civil defense, are training problems for this division, in collaboration with the Training Division.

Storage, issue, requisitioning of supplies and equipment, and the maintenance and repair of equipment used for chemical defense are supply activities which should be performed by this division to insure that these items are available in sufficient quantity and in serviceable condition when needed for chemical defense operations.

Other Special Weapons Defense. As new and more unconventional means of warfare are developed and defenses are perfected to offset the insidious nature of such new types of warfare, provisions should be made for planning and training in connection with the measures to be taken to minimize the effectiveness of the new means of attack. This Division should be set up to carry out the training and operational activities and co-ordination required to assure such protection to the community.

Medical and Health Services. Should be charged with the responsibility for the health of the populace and for its protection against the effects of injury and disease. In discharging this responsibility, it may be sub-divided into three branches, namely, Public Health, Medical Care Services, and Administrative.

The principal missions and functions of the first two of these branches should be accomplished by professionally trained, technical personnel in the main, assisted by lay personnel who have been given sufficient technical training to be of assistance to the professional people. In addition to such lay personnel, there are also certain skilled and semi-skilled assistants who may render services

The professional personnel consists of physicians, veterinarians, dentists, nurses, pharmacists, laboratory technicians, and morticians. Members of these professions are found in every community. The nature of the problems confronting the Medical and Health Services Division is such that mobilization of all members of these professions must be affected speedily and efficiently in time of emergency.

a. **Public Health.** Should be concerned with the control of the health of the public in general, as distinguished from administering to the needs of any one individual. Insofar as possible, the Civil Defense Public Health organization should parallel that of the customary municipal pattern, supplemented by such additional services as become necessary by reason of emergency conditions. The Public Health Branch might be further sub-divided into the following sections, consisting of Communicable Disease Control, General Sanitation, Vital Statistics, and Mortuary Service, Maternal and Child Health, Laboratory, Veterinary Medical, Industrial Medical and Hygiene, Mental Hygiene, Public Health Nursing, and Nutrition.

Communicable Disease Control. Should be responsible for the prevention and control of communicable diseases. This involves the detection and isolation of cases of infectious diseases, the elimination of their cause, and their prevention by immunization, mass dosage measures, disinfection and delousing.

General Sanitation. Should inspect existing and emergency sources of food and milk to determine their cleanliness and purity and to insure that they are not carriers of disease.

Vital Statistics and Mortuary Service. Should be responsible for the keeping of records in the nature of vital statistics, including both births and deaths, occurring during the emergency. In addition, it should be responsible for the collection and identification of the dead; the preservation of the effects and records of the dead; and the preparation for disposal, and actual disposal, of the bodies.

Maternal and Child Health. Should be concerned with the special problems of obstetrics and pediatrics arising in connection with emergency conditions.

Laboratory. Should be responsible for all laboratory procedures, including the blood program.

Veterinary Medical. Should be responsible for animal health and for the prevention and control of communicable diseases of animals.

Industrial Medical and Hygiene. Should be responsible for control of the special problems and conditions arising in connection with industrial health during emergency conditions.

Mental Hygiene. Should be responsible for the care of mental cases arising out of conditions in general emergency.

Public Health Nursing. Should be responsible for administering the public health nursing program as applied to emergency conditions.

Nutrition. Should be concerned with the nutritional problems of emergency diet.

b. Medical Care Services. Should address itself to the problem of actual treatment and cure of the sick and injured, both from the standpoint of immediate aid and from the standpoint of such long term professional care as is required until normalcy is restored, to insure that lives will be saved and bodies made whole to the greatest possible extent. This Branch might be further sub-divided into the following sections, consisting of Casualty Medical Services, Nursing, Pharmacy, Medical Practice, Dental, and Physical Medicine.

Casualty Medical Services. Should be responsible for the professional medical skill required to repair bodily damage done by injury. This should include first aid and emergency care and treatment.

Nursing Section. Should be responsible for the maintenance of nursing services, bedside and clinical, and first aid nursing.

Pharmacy. Should be responsible for the rendering of pharmaceutical services in medical installations.

Medical Practice. Should be responsible for administering professional care and treatment to existing and chronic cases of illness during emergency.

Dental. Should be responsible for the treatment of injuries to the mouth and surrounding tissues, and to the teeth, and should be responsible for oral hygiene during emergency.

Physical Medicine. Should be responsible for the providing of physical medicine and medical rehabilitation services to persons who become casualties.

c. Administrative. Should be responsible for personnel and unit organization, for medical aspects of evacuation, for hospitalization, for medical supply requirements, for plans, and for technical training.

Deputy Director No. 4 exercising administrative supervision over the Evacuation and Civilian War Aid Divisions. A description of the missions of these divisions is set forth below:

Evacuation. Should have the responsibility for planning and execution of mass movements of people (as distinguished from local intra-city clearance of a small area). In discharging this responsibility it is necessary to select in advance assembly areas and to organize and train groups in evacuation procedures. As evacuation becomes necessary, detailed plans concerning routes, rest stops, and feeding and care en route should be brought into action. The very closest co-ordination between the Medical and Health Services, the Transportation, the Police Services, the Civilian War Aid, and the Warden Services Divisions should be maintained and, to this end, it is deemed advisable to have one key member of each of those divisions act as a member of an evacuation board, over which the Chief of the Evacuation Division should preside as Chairman.

Civilian War Aid. Should deal with the problem of providing food, clothing, shelter, and other necessary community aid under emergency conditions. It should also be prepared to furnish similar services to evacuees who might be moved in from another stricken area in accordance with prearranged plans. Provision should be made for stocks of food and for the preparation and dispensing of the food in an orderly, equitable manner. Likewise, provision should be made for the procurement, stocking, and distribution of clothing in accordance with the needs of the populace. Included within the problem of providing shelter, which in turn involves the problem of procurement of housing space to protect persons from the elements, is the further problem of the procurement, insofar as is possible, of bedding to provide for the rest and protection of persons temporarily housed.

Deputy Director No. 5 exercising administrative supervision over the Legal, Public Information, Administration, and Training Divisions. A description of the missions of these divisions is set forth below:

Legal. The Legal Division, which would in all probability be staffed principally with members of the regularly constituted law department of the city, should act as the legal advising agency to the Director of Civil Defense. This would include advance, long-range legal and legislative planning in the main, but it might also involve, in many instances during the emergency, the rendering of immediate opinions on the legality of certain actions not previously covered by legislation.

Public Information. Should be responsible for the dissemination of timely advance information concerning civil defense and the solution of the problems with which the civil defense is concerned on the one hand, while acting as the medium for the gathering of information from the public on matters of importance to civil defense on the other hand. This division should act in collaboration with the Training Division in the education and training of the public in civil defense matters.

Administration. The Administration Division should be charged with the problems of Civil Defense supply, personnel and records. It might be sub-divided into Personnel, Supplies and Records Branches.

a. Personnel. Should be concerned with the recruitment, classification and assignment of persons engaged in civil defense work and with the administration of all personnel records pertaining to them.

b. Supplies. Should be responsible for the procurement and distribution of civil defense supplies.

c. Records. Should be responsible for the administrative work and keeping of the records of those extra Civil Defense agencies which have no existing counterpart in ordinary municipal government. It should also act as the co-ordinating agency for civil defense purposes, of all such files of existing municipal activities as pertain to civil defense. It should, in addition, be responsible for the collection and preparation of statistics in connection with civil defense and all reports to be rendered by the County Commissioners or Director of Civil Defense.

Training. The Training Division should address itself to the mission of carrying on programs of training of the public in general, and of individuals in certain categories. In executing this mission, it might be sub-divided into four branches with functions as described below:

a. General Education of the Public. Should be responsible for inculcating in individuals the general principles and objectives of Civil Defense and basic principles of self-help in fire prevention and protection, general precautionary measures, and allied subjects.

b. Civil Defense Personnel Training. Should be responsible for the orientation of all Civil Defense personnel as to how they fit into the civil defense operations, and their relationship to their fellow workers engaged in other aspects of civil defense. It would also include detailed information as to the areas of responsibility of civil defense and as to the general means of fulfilling such responsibilities. In addition, specific job training would be given by this branch to all civil defense workers, except those required in technical services—such as fire, police, radiological, and medical, or any others where technical rather than general lay training is required.

c. First Aid. First aid training should be given the entire populace to teach them the principles of self-help in first aid and the steps which they should take to ameliorate their own injuries or illness until professional assistance can be rendered them. This type of training is appropriate for the Red Cross to undertake. It should be noted that this first aid training is not the type of professional training to be accorded the technical or semi-technical assistants to professional workers in the Medical and Health Services Division. Such assistants should be given a more thorough course of purely technical training.

d. Technical Training Co-ordination. Should be charged with the responsibility for co-ordination of the technical training necessary for certain special types of

civil defense personnel who require such specialized or skilled training. The actual training would be given by and within the pertinent technical specialty branch itself.

APPENDIX E

Committee on Blood Transfusions

To the Officers and Members of the Maine Medical Association:

On Monday, October 2, 1950, the Committee on Blood Transfusions met at the Veterans' Administration Hospital at Togus along with the Maine Pathological Society and with the Chairman of the Committee on Emergency Civilian Medical Defense of the Maine Medical Association, Dr. Charles W. Steele. Following the policy of the Committee on Emergency Civilian Defense to utilize, wherever possible, established functioning organizations to carry out the tasks which may be required in the event of disaster, the Committee on Blood Transfusions has been selected as the organization responsible for the preliminary planning and procurement of blood and plasma to be used in the event of a major disaster in this state. Following a series of remarks by Drs. Steele, Porter and Wadsworth and general discussion by the group it was decided to make the following recommendations for approval by the Council of the Maine Medical Association.

I. Overall Planning

A. Existing Facilities

At the present time in the State of Maine with a population of 850,000, and an area of 33,040 square miles there are fifty-eight hospitals (1950 A. M. A. Directory) of which only ten have blood banks. Eight of these ten banks are at present equipped both for the processing and storage of whole blood. Two of the banks are for storage only. Most of the present processing is accomplished by four of the ten banks. It is estimated that the combined *annual* output of all of the banks in Maine is approximately 6,000 units of whole blood. It is possible one major disaster in this state may create an immediate demand for a quantity of blood and plasma which exceeds our present *annual* output.

B. Preparation for Major Disaster

1. It is recommended that the blood banks throughout this state immediately prepare to furnish 1,000 units of whole blood and 5,000 units of plasma within 72 to 96 hours after a major disaster. As it is impossible to store whole blood for any prolonged period, efforts to stock-pile blood products must be directed toward the accumulation of plasma. Each bank, however, should expand its roster of trained personnel so as to be able to process whole blood on a twenty-four hour a day basis, by the use of trained organized teams, if and when the disaster occurs. In order to gradually accumulate a stock-pile of plasma each existing bank should gradually increase its present output by at least fifty per cent in order to process the excess into liquid or frozen plasma.

2. It is recognized that this quantity of blood and plasma is insufficient to cover the prolonged needs which would follow an atomic explosion in a major city. If such a disaster occurred it would be necessary to request some aid from neighboring states and from the American Red Cross.

3. The Committee on Blood Transfusions strongly recommends that a Regional Blood Bank with facilities for processing and storage of whole blood and plasma be established in Aroostook County through the combined efforts of the Aroostook County Medical Society and the hospitals in that county.

4. Each existing Blood Bank in the State of Maine is requested to submit to the Chairman of the Transfusion Committee a copy of the Disaster Plan which has been adopted by that Bank for co-operating with the Office of Civilian Defense.

5. It is recommended that each of the existing blood banks which has the facilities for processing and storing blood establish an auxiliary blood bank preferably outside of a major city where, in an emergency, a trained team may immediately start processing blood. Wherever possible, refrigerating equipment not requiring electric power should be ear-marked for use by such a unit.

II. Stock-Piling of Blood Products

A. Disposition of Plasma.

Stocks of plasma should not be accumulated in one central place, but should be stored in many accessible places, particularly outside of a probable target area.

B. Stock-Pile of Liquid and Frozen Plasma.

It is recommended that the Maine General Hospital be asked to stock-pile 1,500 units of plasma; the Central Maine Hospital, 1,500 units of plasma; the Eastern Maine General Hospital 1,500 units of plasma; and St. Mary's Hospital in Lewiston 500 units of plasma. Some of this may be stored as frozen plasma and some as liquid plasma. All supplies and products that can become outdated should be used in rotation to avoid wastage from expiration. These frozen or liquid plasma units should be pooled from not more than two donors each of the same ABO and Rh types and the donor types should be designated on each bottle.

C. Stock-Pile of Dried Plasma.

It is recommended that each hospital in the State of Maine which now uses dried plasma should double the quantity which is normally kept on hand for reserve. From these stores it should be possible to accumulate approximately 200 units of dried plasma to be used in a major disaster.

D. The American Red Cross has stated that it will be unable to supply plasma for stock-piling in preparation for a disaster. To augment our potential supply for disaster purposes it is recommended that the Maine State Legislature be requested to appropriate funds to purchase a stock-pile of 1,000 units of dried plasma to be stored strategically throughout the state.

E. It is recommended that each operating blood bank procure for emergency use a sufficient quantity of A and B substances to be added to Type O blood which may have to be used in the first 72 hours as "Universal Donor" blood. The amount which each Bank should have on hand should be in the ratio of one vial (10 cc.) for each unit of Type O blood to be collected in the first 72 hours following the disaster. One can anticipate that approximately one-half of the blood collected will belong to Type O. The three larger Blood Banks might each be called upon to supply 300 units of blood in the first seventy-two hours. Supplies should be used in rotation to avoid wastage from expiration.

III. Blood Bank Personnel

A. Personnel Expansion.

With the possible sudden demand on the existing Banks it is imperative that additional personnel be trained as phlebotomists, blood-typing technicians and blood processors. Because of the anticipation of nurse and technician shortage, this newly trained group of blood-bank personnel would probably have to come from the lay population.

1. Paid Personnel.

It is recommended that wherever possible one or more additional paid technicians be added to the permanent blood bank personnel.

2. Volunteer Personnel.

It is recommended that the following sources be tapped for volunteer recruits.

a. Previously employed blood-bank technicians and phlebotomists.

b. College students enrolled as technicians, veterinary students, premedical and pre dental students. It is suggested that the co-operation of the University of Maine, Bates College, Bowdoin College, Colby College and Westbrook Junior College might be obtained for this project.

c. Women whose household duties permit ample time for training. These people could be given sufficient training to act as members of a blood-bank team in time of emergency. They should be assigned to regular volunteer duty in order to maintain efficiency in the task to which they may be assigned.

d. A file should be kept with the name, address and telephone number of each volunteer assistant.

3. Phlebotomy Teams.

Each hospital which now procures blood should organize phlebotomy teams (four if possible) so that at a moment's notice there will be facilities and personnel for bleeding the maximum number of donors on a continuous 24-hour basis. A phlebotomy team should not plan to work longer than a six hour shift without relief.

It is further recommended that the existing Blood Banks assist in the training of phlebotomy teams in the surrounding communities. Repeated courses might be given at each of the Banks.

IV. Preparation on Donors

A. Identification and Filing System.

1. In order to strengthen civilian morale and to avoid the unnecessary postponement of some procedures until time is short, it appears desirable to start immediately to determine the ABO and Rh blood types of all persons in the State of Maine. A file should be kept at the institution performing these procedures and a copy should be sent to the Diagnostic Laboratory, Bureau of Health and Welfare, State House, Augusta, where a Master-file with names, addresses and typings of all registrants should be kept.

B. Civilian Typing Centers.

The typing of many of the civilians could be performed by the existing blood banks. It is suggested that each Bank set up a typing center in a down-town area once or twice a month.

C. Expansion of Blood-Typing Files.

1. It is recommended that as soon as possible, each laboratory in the state which is performing serological tests for syphilis will save a portion of the blood submitted for serology to be used for ABO-Rh typing and will record the name, address, and typings in the Blood-typing file, sending a duplicate record to the State Diagnostic Laboratory.

2. It is recommended that each hospital in the state be requested to assist in collecting blood samples for typing. If a hospital is unable to perform such tests, bloods could be placed in proper containers and sent to a central laboratory for typing. It is suggested that the State Diagnostic Laboratory be requested to expand its facilities to handle the expected load from the smaller communities.

3. It is recommended that the State Diagnostic Laboratory be asked to supply the necessary typing serums to accomplish this State-wide program as an expansion of its existing Public Welfare Services.

D. Identification Tags.

It is recommended that the State of Maine, through the Diagnostic Laboratory furnish suitable Identification Tags or Cards which each civilian will be expected to wear or carry and which will quickly identify his ABO and Rh blood types. It is suggested that blood typing might be made a prerequisite for securing a State of Maine Operator's li-

cense, Hunting license or Fishing license and that a space be reserved on such licenses for recording the ABO and Rh blood types of the applicant. It is anticipated that typing and Rh determinations on recipients and cross-matching with donors *immediately* after a disaster will be impossible. Initially Type O (Universal Donor) blood will be given without regard for Rh type or cross-matching. If the recipients possess identification and have had their blood type and Rh factor printed on their identification, the use of blood from donors of their own type will be greatly facilitated.

V. Equipment

A. Quantity.

1. It is recommended that the Office of Civilian Defense be requested to purchase and strategically distribute one thousand donor sets, one thousand recipient sets and one thousand blood bottles for emergency use.

2. To augment the above stock-pile it is recommended that each hospital now using blood for transfusions double the number of blood bottles, donor sets and recipient sets which it normally keeps in reserve.

B. Type of Equipment.

1. In order to have uniform interchangeable equipment throughout the state it is recommended that all Disaster Stock-Piles be composed of expendable Baxter equipment.

a. H-9 Transfuso-vac with Fuso-Flo stopper.

b. 20-R Sterile Plexitron Blood Collection Set.

c. 19-R Sterile recipient set.

C. Conservation of Equipment.

Every hospital using expendable transfusion equipment should stock-pile the used equipment *from now on*. **EXPENDABLE EQUIPMENT SHOULD NOT BE DISCARDED**. The necessity for this measure is to ensure adequate amounts of equipment should supply houses be exhausted or transportation from them be unavailable. It can be washed, prepared and stored according to the following directions.

1. Rehabilitation of expendable equipment.

a. Rinse thoroughly with running cold tap water under pressure.

b. Fill with warm, not hot, 1-1000 sodium hypochlorite solution.

c. Let stand 2 hours.

d. Rinse thoroughly with running cold tap water.

e. Drain.

f. Dry by hanging recipient-end uppermost and in a dust-free, dry room.

g. To prepare for use:

(1) Rinse with 20.0 cc. pyrogen free water.

(2) Boil in pyrogen free water for 30 minutes.

h. Wrap in bundles of 10 or more, autoclave and store in dry, clean place.

2. Pyrogen free water (in case pyrogen free distilled water is not available).

a. Filter cold tap water into vessel through cotton cord type or filter.

b. Add "NORIT" (activated charcoal)—1 level tablespoonful per gallon of water.

c. Boil for five minutes in covered vessel.

d. Cool.

e. Use only decanted clear supernatant fluid.

3. Bottles.

a. Rinse thoroughly with running cold tap water.

b. Wash thoroughly with 1 teaspoonful of GLIM per gallon of hot water.

c. Invert to drain.

Continued on page 36

THE AMERICAN ACADEMY OF GENERAL PRACTICE — MAINE CHAPTER

The American Academy of General Practice was founded a little over three years ago, June 10, 1947, in Atlantic City by a group of physicians firmly convinced that general practice is the foundation of good medical care in America. In this group which founded the National Organization was Dr. Adrian H. Scolten of Portland, Maine, who is now president of the Maine Academy of General Practice.

During the first three years of the organization, Dr. Scolten has been a member of the important Educational Committee of the National Committee of the national organization. This committee has met frequently. Last year it met with the Annual Congress on Medical Education and Licensure of the American Medical Association in Chicago. There, among other remarks, Dr. Scolten made the following statement as reported in the Proceedings of the Annual Congress on Medical Education and Licensure, p. 57, "Before becoming a specialist, I believe that a doctor should have from three to five years' experience as a general practitioner. In other words he should be a real doctor before he is given a rating as a real specialist."

Since the founding of the organization three years ago, chapters of the National Academy of General Practice have been given charters in every state in the Union and Hawaii, and there are over 18,000 members. Maine received its charter this past year, 1950. The officers of the Maine Chapter have never before been publicly announced. They are as follows: Adrian H. Scolten, M. D., President, Portland, Maine. Carl H. Haas, M. D., Vice-President, Biddeford, Maine. Francis A. Fagone, M. D., President-elect, Portland, Maine. George E. Loewenstein, M. D., Secretary-Treasurer, Chebeague Island, Maine. William Hutch, Attorney-at-Law, Counsel, Portland, Maine. Board of Directors: Walter D. Mazzacane, M. D., Chairman, Old Orchard Beach, Maine; Clyde I. Swett, M. D., Island Falls, Maine; Alexander W. Magocsi, M. D., York Village, Maine; David Samuel Ascher, M. D., Patten, Maine.

Dr. Scolten, the President and Spokesman for the recently organized Maine group, says that to be eligible for membership to the Maine branch of the National Organization, a candidate must be of high moral and ethical character, have a sincere interest in his patients and be a credit to the community in which he practices. He must be a member of his County Medical Society, the Maine Medical Society and the American Medical Association with which the organization is not in conflict. He must be a graduate of an approved medical school, have satisfactory internship training, and have continued his medical advancement and service to his patients by engaging in Postgraduate Education, other than attending local hospital

sessions and County Medical meetings. The National Educational Committee has stipulated that he must be willing to take such postgraduate work periodically in order to remain a member of the Academy. The National Educational Committee, of which Doctor Scolten has been a member for three years, has outlined what is considered satisfactory postgraduate training.

The definition of a General Practitioner, according to the American Academy of General Practice, is "any licensed physician and surgeon who holds the degree of M. D. and who does not limit his practice exclusively to any one specialty." Dr. Scolten is a member of three specialty groups, dermatology, allergy and psychiatry and therefore fits into this definition. He says that the number of physicians in Maine who limit their work to any one specialty are few compared to the number who rate as general practitioners and family doctors who are eligible for membership in the Maine Academy of General Practice under its rules for membership. He states that the American Academy of General Practice is really a part of the American Medical Association set-up, just as are the organizations for men who have specialties. It is virtually a division of the parent organization.

Dr. Scolten says that the Maine Academy of General Practice, though the last to be born, will outgrow the other specialty medical societies and will be exceeded in size in Maine, only by the Maine Medical Society. The specialists have long had their own organizations.

Until the Academy of General Practitioners was founded in Atlantic City general practitioners were unorganized. They had no united voice and they were not given the recognition to which they were entitled. This is especially true of hospital staff appointments. Since the National Organization was formed a little over three years ago its growth has been phenomenal, even beyond the expectation of those in the small group who founded it. General practitioners everywhere have demonstrated their appreciation for this opportunity to band together in one united group.

Dr. Scolten says he feels that it is eminently fitting that the position of the General Practitioners in this country be "redignified" and especially that of the "country doctors." These men give skillful medical attention and unselfish devotion to humanity. They are the men who come closest to the hearts of their patients, for they are present at all hours, to give greater health to a loved one, to bring new life into the world, and to give comfort when life must end. Through the snows of winter, they dig their way in the untraveled regions. Through the dark hours of

Continued on page 35

COUNTY SOCIETIES

Androscoggin

President, Eustache N. Giguere, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Frank A. Smith, M. D., Westbrook
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Maynard B. Colley, M. D., Wilton
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Harry F. Morin, M. D., Bath
Secretary, Neil L. Parsons, M. D., Damariscotta

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

York

President, William F. Mahaney, M. D., Saco
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

100% Paid-Up Membership for 1951

Piscataquis County Medical Society, N. H. Nickerson, M. D., Greenville, Secretary.

According to the records of the Maine Medical Association, the members of the Piscataquis County Medical Society have been first with 100% payment of dues for fourteen consecutive years.

Cumberland

A meeting of the Cumberland County Medical Society was held at the Maine General Hospital on Thursday, November 30, 1950. A clinic at 5.45 P. M. included an interesting motion picture loaned by the United States Army depicting a mock atomic bombing. This was followed at 6.45 with a dinner, and the regular meeting of the Society.

The meeting was called to order by President Smith, who appointed a Nominating Committee to report at the Annual Meeting of the Society to be held in December with recommendations for the offices to be filled in 1951. He appointed the following men to this committee: William Holt, M. D., Chairman; Thomas A. Martin, M. D., G. E. C. Logan, M. D., Edward G. Asherman, M. D., and Charles I. Geer, M. D.

The Secretary stated that the Woman's Auxiliary was interested in having a joint meeting with the Cumberland County Society. It was voted that the officers of the Society contact the officers of the Woman's Auxiliary and arrange such a meeting.

A letter was read from the Telephone Answering Service Bureau, Inc., written by Mr. E. C. Paul, its treasurer, which in substance offered the services and the use of one of their trunk telephone lines free of charge to the Cumberland County Medical Society for the purpose of handling emergency calls for doctors on a 24-hour basis. It was obvious from the discussion that the members of the Society were interested in this proposal and it was promptly voted that the Public Relations Committee further investigate the proposal and bring in a report at their earliest convenience.

Mr. Donald M. Rosenberger, Director of the Maine General Hospital, explained a campaign which is being conducted by the Maine Hospital Association to get several thousand signatures requesting that the legislature increase the funds for State Aid.

The program of the evening was a Panel on Civil Defense. The Director of the Panel was Brig. Gen. Spaulding Bisbee, State Director, Office of Maine Civil Defense and Public Safety. Following his initial discussion he introduced the following speakers:

Col. Charles W. Steele, State Deputy Director in charge of Medical Aspects of Civil Defense and Public Safety and Chairman Committee on Emergency Civilian Defense, Maine Medical Association.

Col. Charles L. Stephenson, Director of Civil Defense and Public Safety, Cumberland County.

Col. O. H. Stanley, Deputy Director in charge of Medical Services. Cumberland County Civil Defense Director. Former Deputy Surgeon General, World War II.

Col. Roland B. Moore, in charge of the Medical Aspects of Civil Defense Planning, City of Portland.

Dr. Albert W. Moulton, Deputy Chairman of the Committee on Emergency Civilian Defense, Maine Medical Association.

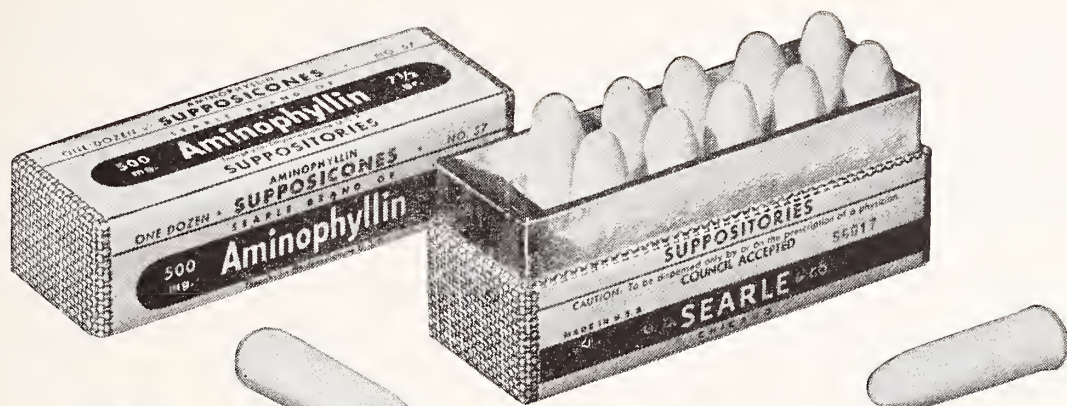
Dr. Edward W. Colby, Public Health Director, City of Portland.

Mr. Donald Rosenberger, Chairman, Committee on Emergency Medical Care, Maine Hospital Association. Assistant State Deputy Director.

Mrs. Roger Hodgkins, R. N., Director of Nursing Service for Civil Defense.

Mr. H. Norton Maxfield, Assistant Chairman, City of Portland Defense Unit.

Dr. Joseph E. Porter, member of the Maine Medical Association Committee on Transfusions.



In Bronchial Asthma . . .

"Rectally, Aminophyllin may be given in a dosage of 7½ grains. . . Rectal instillation of a suppository . . . is of particular value in patients with inaccessible veins."

Halpin, L. J.: An Appraisal of Therapeutic Procedures in Bronchial Asthma, J. Iowa M. Soc. 39:468 (Oct.) 1949.

SEARLE



AMINOPHYLLIN* SUPPOSICONES®

500 mg. (7½ grains) for rectal administration

nonirritating to rectal mucosa . . . prompt disintegration . . . easily inserted and retained.

Searle Aminophyllin is also available in ampuls, powder and tablets.**

**Uncoated tablets of Searle Aminophyllin bear this identifying imprint—to assure your patients of unvarying quality.



*Contains at least 80% of anhydrous theophylline.

G. D. SEARLE & CO. • CHICAGO 80, ILLINOIS

RESEARCH IN THE SERVICE OF MEDICINE

SEARLE

Advertisement



From where I sit by Joe Marsh

Sometimes Good Intentions Aren't Enough

That fire at the Hastings' place last night didn't do much damage, but Volunteer Chief Murphy was pretty angry about it. Spoke to some of us over dinner and a bottle of beer.

"Hastings' farm is a good mile from town," he said. "And by the time we'd dodged all the people on the highway who were going to watch, we hadn't a minute to waste.

"Then blamed if those sightseers hadn't parked cars right in Hastings' driveway and there was a mob around the house—just gawking. Joe, tell folks a fire's no sideshow. Ask 'em to think of the other fellow!"

From where I sit, sometimes even good intentions turn out to be unfair interference. Whether it's blocking the right-of-way of fire equipment, denying a man a chance to practice medicine where and when he chooses, or criticizing a person's right to enjoy a temperate glass of beer—the American Way is to give everybody his rightful "share of the road"!

Joe Marsh

Copyright, 1951, United States Brewers Foundation

It is impossible to summarize what was said by all of these officials. It is obvious that much work has been done and equally obvious that much remains to be done. A complex organization is in the planning stage which will eventually involve, apparently, most of the citizens of Maine. The physicians of Cumberland County will be closely tied in with this program. Just where we fit in is not exactly clear at the present time. However, General Bisbee was assured that the physicians of the Cumberland County Society will cooperate to the fullest extent.

RALF MARTIN, M. D.,
Secretary.

Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Veteran's Administration Center, Togus, Maine, November 16, 1950, at 7.00 P. M.

President Allan C. Hurd presided at the business meeting and appointed the following committees:

Committee on Resolutions on the death of George R. Campbell, M. D., of Augusta. Harold E. Small, M. D., Chairman. Roscoe L. Mitchell, M. D.

Hospital and Professional Relations Committee. Frederick T. Hill, M. D., Chairman. Frank B. Bull, M. D., Adolphe J. Gingras, M. D., Leon D. Herring, M. D., and Robert W. Wilson, M. D.

Nominating Committee (to submit a proposed list of officers for 1951 at the next meeting). Ivan E. McLaughlin, M. D., Chairman; Elmer H. Jackson, M. D., Ralph L. Reynolds, M. D., and Lorrimer M. Schmidt, M. D.

Edward L. Foote, M. D., of Togus, was elected to membership.

Dwight Harkin, M. D., of Boston, speaker of the evening, was introduced by Dr. Valliere of the Veteran's Administration. Dr. Harkin's subject was "Surgical Treatment of Mitral Stenosis." Dramatic colored movies demonstrated the technique.

A. H. MORRELL, M. D.,
Secretary.

Knox

At a recent meeting of the Knox County Medical Society the following officers were elected for 1951.

President, Harry G. Tounge, M. D., Camden.

Vice-President, Frederick C. Dennison, M. D., Thomaston.

Secretary-Treasurer, Robert L. Allen, M. D., Rockport.

Delegate to the Maine Medical Association, Wesley N. Wasgatt, M. D., Rockland. Alternate, Dr. Dennison.

FRANK W. KIBBE, M. D.,
Secretary.

New Member Kennebec

Edward L. Foote, M. D., Veteran's Administration, Togus, Maine.

NEWS AND NOTES

State of Maine

Board of Registration of Medicine

Adam P. Leighton, M. D., 192 State Street, Portland, Maine, Secretary.

List of physicians licensed in Maine, November, 1950:

Through Examination

J. Clarence Bourque, M. D., St. Leonard, New Brunswick, Canada.

Fairfax Hall, M. D., 421 Huguenot St., New Rochelle, N. Y.

Edward L. Kinder, M. D., Maine General Hospital, Portland, Me.

Marcel D. Ouellette, M. D., 196 Bates Street, Lewiston, Me.

Sister Mary Leo Ouellette, M. D., 863 Central Street, Framingham Center, Mass.

George F. Sager, M. D., 60 Lexington Ave., Portland, Me.

Harold E. Small, M. D., 31 Grove Street, Augusta, Me.

Harold A. Spalding, M. D., 875 Main Street, South Weymouth, Mass.

Through Reciprocity

Charles F. Branch, M. D., 69 Gamage Ave., Auburn, Me.

Lewis J. Cataldo, M. D., 54 Eastern Promenade, Portland, Me.

Luigi M. DeCicco, M. D., P. O. Box 283, Togus, Me.

Joseph J. Delfino, M. D., U. S. Veterans' Hospital, Togus, Me.

Edward L. Foote, M. D., 112 Eastern Ave., Augusta, Me.

Rufus H. McVetty, M. D., Guildhall, Vt.

Samuel L. Mitchell, M. D., 43-12 Parson's Blvd., Flushing, N. Y.

Paul H. Nesse, M. D., 606 N. 13th Street, Philadelphia, Pa.

Burton L. Olmsted, M. D., 73 Deering Street, Portland, Me.

Eva Reich, M. D., Rangeley, Me.

Morrill Shapiro, M. D., 22 Arsenal Street, Portland, Me.

William R. Simonds, M. D., 1 Farragut Road, Plainfield, N. J.

John E. Sonneland, M. D., Maine General Hospital, Portland, Me.

Charles J. Williams, M. D., 124 College Ave., Waterville, Me.

Theodore P. Wolfe, M. D., Rangeley, Me.

Howard L. Wylie, M. D., Box 62, Rangeley, Me.

**Department of Health and Welfare
Division of Maternal and Child Health
(Including Services for Crippled Children)
Clinic Schedule—1951**

ORTHOPEDIC CLINICS

Portland — Maine General Hospital, 9.00-11.00 a. m.: Jan. 8, Feb. 12, Mar. 12, April 9, May 14, June 11, July 9, Aug. 13, Sept. 10, Oct. 8, Nov. 5, Dec. 10.

Lewiston — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 19, Feb. 16, Mar. 16, April 20, May 18, June 15, July 20, Aug. 17, Sept. 21, Oct. 19, Nov. 16, Dec. 21.

Rumford — Community Hospital, 1.30-3.00 p. m.: Mar. 14, June 20, Sept. 19, Dec. 19.

Waterville — Thayer Hospital, 1.30-3.00 p. m.: Feb. 15, April 26, June 28, Aug. 23, Oct. 25, Dec. 27.

Rockland — Knox County Hospital, 1.30-3.00 p. m.: Feb. 8, May 17, Aug. 16, Nov. 15.

Machias — Normal School, 1.30-3.00 p. m.: Feb. 14, Apr. 11, June 13, Aug. 8, Oct. 10, Dec. 12.

Presque Isle — Northern Maine Sanatorium, 9.00-11.00 a. m.—1.00-3.00 p. m.: Jan. 9, Mar. 7, May 8, July 11, Sept. 11, Nov. 7.

Houlton — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 6, July 10, Nov. 6.

Fort Kent — Normal School, 10.00-1.00 p. m.: Jan. 10, May 9, Sept. 12.

Bangor — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 25, Mar. 29, May 24, July 26, Sept. 27, Nov. 29.

CARDIAC CLINICS

Portland — Maine General Hospital, 9.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

Bangor — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

HARD-OF-HEARING CLINICS

Waterville — Thayer Hospital, 1.30-3.30 p. m.: Feb. 21, June 6, Sept. 5, Dec. 5.

PEDIATRIC CLINICS

Bangor — Eastern Maine General Hospital, 1.30 p. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

Waterville — Thayer Hospital, 1.30 p. m.: Jan. 2, Feb. 6, Mar. 6, April 3, May 1, June 5, July 3, Aug. 7, Sept. 4, Oct. 2, Nov. 6, Dec. 4.

Presque Isle — Northern Maine Sanatorium, 1.30 p. m.: Jan. 24, Mar. 28, May 23, July 25, Sept. 26, Nov. 28.

By appointment only.

**The Trudeau Foundation
for
The Clinical and Experimental Study of Pulmonary
Disease**

At Saranac Lake, N. Y. The Saranac Laboratory, The Trudeau Foundation, The Trudeau School.

At Trudeau, N. Y. The Department of Physiology, The Department of Biochemistry, The Department of Radiology, The Trudeau Laboratory.

Saranac Lake, N. Y.
October 17, 1950

ANNOUNCEMENT

The Trudeau School of Tuberculosis announces its thirty-seventh annual session of four weeks, to begin on Monday, April 30, 1951. The subject matter of the course covers all aspects of pulmonary tuberculosis and also certain phases of other chronic chest disease, including those of occupational origin.

The schedule is in preparation; in the meantime, copies of the 1950 program are available if desired.

Reservations have already been requested for two-thirds of the 1951 enrollment. Since the registration is limited, it is suggested that those who plan to attend make early application.

Tuition is \$100.00, payable to the Trudeau School on or before April 30, 1951. A few scholarships are available for those who can qualify.

Address: Secretary, The Trudeau School, Saranac Lake, New York.

The American Academy of General Practice—Continued from page 31

the night when others are sleeping, they make their way to give relief to the suffering and comfort to the distressed. These medical men are the unsung heroes on the pages of history. Too often they are the "forgotten men."

The dues for the yearly membership in the Maine Academy are \$35. This includes \$10 initiation fee, \$10 for the Maine chapter and \$15 for the national organization. The dues include a year's subscription to "GP," the significant new medical journal which has been acclaimed as the best publication yet, to fill the needs of the general practitioner,

Dr. Scolten says that the next meeting of the Maine Academy of General Practice will be a dinner meeting in the Lafayette Hotel, on Thursday, January 11. All members of the Maine Academy are invited to attend.

Any physician practicing in Maine who cares to join the Maine Academy of General Practice should write to the Secretary and Treasurer, George E. Loewenstein, M. D., Chebeague Island, Maine, requesting an application blank and a booklet entitled, "An Invitation," containing 22 answers and questions concerning the Academy.

What Every Maine Doctor Should Know About Civil Defense—Continued from page 30

- d. Store bottles inverted in the original carton if possible, in dry clean room.
- e. *IF POSSIBLE*: 75 cc. of ACD No. 1 solution should be added (see N. I. H. formula) the bottles properly autoclaved with their caps loose.
- f. Tighten the caps after autoclaving, seal with scotch tape and store.
4. Sodium Citrate Solution.
 - a. Filter one gallon of cold tap water as in 2 (a).
 - b. Add—"NORIT"—one level tablespoonful as in 2 (b).
 - c. Heat to boiling in covered container.
 - d. Permit settling.
 - e. Decant 75 cc. of clear, supernatant fluid into each bottle.
 - f. Boil 30 minutes or autoclave as in 3 (e and f).
5. For making the above solutions, the following items should be stock-piled: Sodium citrate (or ACD ingredients), NORIT, USP Sodium Chloride, USP Dextrose, and scotch tape for sealing on caps.

VI. Transportation

- A. Plans are in progress for the registration and emergency acquisition of vehicles for the transportation of blood,

plasma, phlebotomy teams and apparatus to strategic points at the time of disaster.

B. Insulated Boxes.

Each blood procurement agency should establish and record the location of all possible insulated boxes which could be used for transportation of blood to the scene of the disaster. Coco-Cola picnic boxes or similar insulated boxes each containing a can of ice could readily be used for such a purpose.

VII. Requests for Blood and Plasma

A. Channels.

The normal channels for the requests for blood, plasma and equipment for administration of these products should be made through the No. 3 Deputy Director (Civil Defense Plan) of the community requiring this assistance.

Respectfully submitted,

RICHARD C. WADSWORTH, M. D., *Chairman.*
 JOSEPH E. PORTER, M. D.,
 GILBERT CLAPPERTON, M. D.,
 JOSEPH A. DONOVAN, M. D.,
 JOHN F. REYNOLDS,

Committee on Blood Transfusions.

This plan was submitted to and approved by the Council of the Maine Medical Association at Bangor on October 15, 1950.

Getting Along With One's Self and Others—Continued from page 12

needs. We must speak in their own language, not only in the words they use, but also in the language of their thoughts.

Men and women vary in their social adaptability and reactions. Getting on with others is a double problem. It is necessary to see the other's point of

view and to help them to gratify their laudable ambitions. We should avoid exciting the emotions of fear, shame, guilt or inferiority. We must be able to identify ourselves with others and to feel as they do. To get along with one's self is a science — to get along with others is a fine art.

"SERVICE"

That Is Our
Motto

Maine's Progressive Surgical Supply Store

Serving Maine Physicians and Hospitals as a progressive concern, it is needless to say we are never satisfied, so if you have not opened an account with us why not do so today.

Maine Surgical Supply Co.

10 LONGFELLOW SQUARE

PORTLAND 3 . . MAINE



John H. Lacy, Proprietor

Registered Pharmacist





The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, February, 1951

No. 2

A CASE OF SIGMOIDOVESICAL FISTULA IN A MALE 39 YEARS OF AGE

ARTHUR H. McQUILLAN, M. D.

The first case of vesicointestinal fistula was described by Praxagoras in the fourth century. From that time until now, pneumaturia, viz.—the passage of air from the urethra—has been of great interest to general surgeons and urologists. To date, only approximately seven hundred cases have been reported where the etiological factor has been the direct result of a communication between the bowel and the urinary tract.

Pneumaturia is etiologically due to three possibilities: 1, air may be introduced into the bladder from without; 2, there may be a gas-producing bacterial invasion of the urinary tract; and, 3, there may be a communication between the intestinal and urinary tracts.

There may be one of four causes of a communication between the intestinal and urinary tracts: 1, congenital fistulas, associated with congenital imperforate anus — (these are rare); 2, traumatic fistulas, which are usually due to penetrating wounds, instrumental deliveries, ingested foreign bodies, severe pelvic fractures and surgical accidents; 3, neoplastic fistulas, which are the result of direct extension and complications following the use of X-ray or radium in the treatment of neoplastic disease; 4, inflammatory fistulas, which to me, present the most interesting group of all. They present a diagnostic problem of great magnitude and a challenge to the surgeon. Their ultimate recovery is certainly a surgical problem.

The causes of inflammatory fistulas as listed and reported are: actinomycosis, typhoid fever, syphilis,

amebiasis, tuberculosis of the bladder, bowel or peritoneum, prostatic and appendiceal abscess, terminal ileitis, and adnexal disease in women. Diverticulitis of the colon, the most common, occurs most frequently in men.

The case in question is that of a man, a lawyer-farmer, 39 years of age. He was admitted to the Thayer Hospital, Waterville, Maine, February 22, 1950, with a history of abdominal pain of twenty-four hours' duration. His history antedated this admission by two years, when he first experienced left lower abdominal pain for twenty-four hours. This was relieved by an enema. The tenderness persisted in the region for ten days. About one year later, he again experienced left lower abdominal pain, which was steady and unremitting. The tenderness persisted for one week. Twenty-nine hours before admission he had acute abdominal pain for the third time. The pain did not disappear even after four enemata, but seemed to be more persistent and severe than any previous attack. He had no cramps and did not vomit. He had some "chilly sensations," but no frequency or dysuria.

His Past History disclosed the usual acute diseases of childhood without complications. He had jaundice twenty-five years ago, at the age of fourteen; also an allergic sinusitis since the age of seven. This required an operation twenty years ago.

His Family History was negative except for the fact that his father, living age sixty, has asthma.

Physical examination revealed the following: Temp. 102, Pulse 120, Resp. 20; B.P. 180/104;

Weight 230; Skin, warm and clear; Pupils and Fundi, normal; Nose, both nares clear; Mouth, no muco-purulent material apparent in the pharynx; Thyroid, normal; Lungs, clear; Heart, border clear, regular, rapid rhythm, no murmurs; Abdomen, distended generally, tympanic but compressable; General tenderness, but most marked in supra-pubic region and left lower quadrant; No masses felt; a few high-pitched borborygmi in the area of tenderness; Genitalia, normal, no hernia; Reflexes, normal; Rectal and prostate, normal size, shape and consistency, no tenderness; remainder of examination negative.

Upon admission he was found to have a W.B.C. of 24,900, which soon subsided under Streptomycin, Penicillin and intravenous medications. A barium enema eight days later showed "no obstruction to the inflow of the enema and a few scattered diverticula in the descending colon without deformity," (see cut). He improved clinically and was dis-

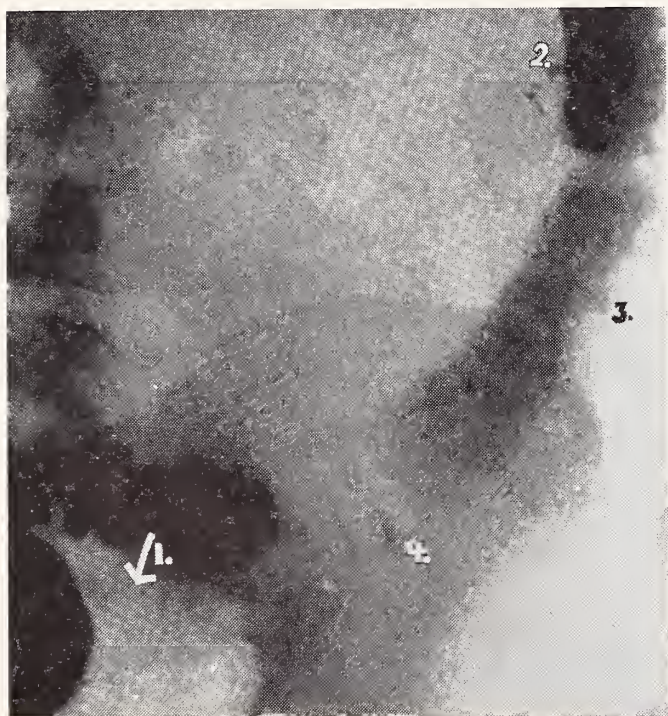


Figure 1 at arrow shows the point of rupture of the diverticulitis posteriorly where the sigmoid vesico fistula appeared. Figures 2, 3 and 4 show other small diverticuli not involved in the present process.

charged on March 5, 1950, with a normal W.B.C., temperature and no abnormalities in the urine.

In about three weeks he was readmitted. He stated that on the day previous to admission he had noticed cloudy urine with an escape of gas after urination, accompanied by a "dragging sensation" over his bladder.

His examination on entrance was essentially normal except for a temperature of 99.2, and a specimen of urine loaded with pus and colon bacilli.

The next day cystoscopy was performed. The cystogram showed no abnormality, but the cystoscopy showed a necrotic ulcer-appearing lesion on the left posterior wall of the bladder. Barium enema showed no change. Intravenous pyelogram showed only an irregularity in the left posterior region of the trigone.

Five days later he was explored, and a preoperative diagnosis of vesico-sigmoid fistula was made.

The incision was a transverse epigastric one about two and a half inches above the umbilicus. The exploration revealed signs of marked cellular infiltration in the left lower posterior abdominal pelvic area consistent with sub-acute inflammatory reaction involving the sigmoid and bladder.

A transverse colostomy was done, and he was discharged with the colostomy functioning perfectly twelve days later. Three months later his pyuria had cleared entirely.

On November 30th, eight months later, he was admitted for the third time. He had been on a diet to lose weight and had lost sixty pounds. His urine remained clear, proctoscopic examination was negative, and a barium enema showed only a few diverticula in the descending colon.

On December 4th, the involved segment of the sigmoid was resected together with its area of attachment to the bladder. The sinus communicating the two organs had closed. He was discharged eight days later.

He was readmitted for the fourth time, December 26, 1950. The transverse colostomy was closed a few days later. He was discharged January 5, 1951, weighing 165 pounds. His bowel movements were normal, urine normal, and blood pressure was 130-60. He felt and was perfectly well.

February 22, 1950, to January 5, 1951—11 months from onset to recovery.

This is a rather typical history for acute sigmoid diverticulitis with rupture into the bladder, sigmoid-vesical fistula with pneumaturia, transverse colostomy, resection of the involved segment, closure of the colostomy and recovery.

I wish to thank Dr. Frederic Champlin, Internist; Dr. Moses Lubell, Roentgenologist; Dr. Joseph Memmelaar, Urologist; and Dr. Edwin Harlow, General Surgeon, who all helped me with this most interesting case.

BIBLIOGRAPHY

1. Mayfield, L. H., and Waugh, J. M.: Sigmoido-Vesical Fistular Resulting from Diverticulitis of the Sigmoid Colon, *Annals of Surgery*, Volume 130, No. 2, 186-199, August, 1949.
2. Ormond, J. K., et al.: Vesicointestinal Fistulas, Volume 89, No. 4, 411-416, October, 1949.
3. Mayo, C. W., and Blunt, C. P.: Vesicosigmoidal Fistulas Complicating Diverticulitis: S. G. and O., Volume 91, No. 5, 612-616, November, 1950.
4. Bacon, H. E., and Sherman, L. F.: Management of Diverticulitis of the Sigmoid Colon, *The American Journal of Surgery*, Vol. 80, No. 1, 3-10, July, 1950.

SEVERE HEAD INJURY WITH FRACTURE OF SKULL AND FACIAL PARALYSIS**Case Report***

JOHN F. REYNOLDS, M. D., and FREDERICK T. HILL, M. D., Thayer Hospital, Waterville, Maine

A seventeen-year-old white female was admitted to Thayer Hospital fifteen minutes after a motorcycle accident. She had been thrown against the butt of a nearby tree, sustaining serious injuries to the head and face.

Examination revealed a young girl, unconscious, with severe scalp lacerations, bleeding from the nose, mouth, and left ear. She was pallid and dirty but not in acute surgical shock. Blood pressure was 120/70; pulse, 100 and regular. There were two six-inch lacerations of the scalp. One extended from the right parietal hairline in crescentic fashion over the vertex to the left parietal hairline. The second extended from just above the right ear to the vertex in L-shape fashion. The galea was lacerated and the skull was exposed. There was ecchymosis of the right mastoid region and the left eye, and multiple lacerations, ecchymosis, and swelling of the tongue and floor of the mouth, with considerable injury to the molar teeth and gum margins.



Roentgenogram showing fracture extending from vertex to base and involving temporal bone.

Otological examination revealed a blood clot in the left external auditory meatus with some evidence of hemorrhage in the middle ear. There was a laceration of the superior portion of the right external auditory meatus, together with a definite hemotympanum. The remainder of the physical examination was essentially negative save for multiple contusions and abrasions of the extremities. There was no respiratory embarrassment and her reflexes, as grossly determined, were within physiological limits. Urinalysis was completely normal.

After thorough evaluation the patient was taken to the operating room where the scalp wounds were probed with the gloved finger and an extensive comminuted linear fracture was found beneath the most lateral and posterior of the lacerations. All wounds were thoroughly irrigated, debrided, and then loosely closed. Lumbar puncture showed an initial pressure of 175 mm. of water. The spinal fluid was grossly bloody and contained 41 WBC and 18,000 RBC cu. mm. Final pressure after removal of 6.0 cc. of spinal fluid was 160 mm. The patient was returned to bed with a diagnosis of:

- Fracture of skull, right parietal, compound.
- Basal skull fracture, involving the temporal bones.
- Multiple lacerations of scalp, and gum margins.
- Cerebral laceration, extensive.
- Multiple contusions and abrasions.

Treatment instituted was the administration of continuous intravenous fluids through a cannula in an ankle vein, together with 100,000 units of penicillin, parenterally, every six hours. Sodium sulfadiazine was added to the intravenous fluids. As there was no evidence of respiratory difficulty it was felt safe to administer morphine in small doses to control the extreme restlessness. Sterile gauze wicks were maintained in both ears.

The patient became well stabilized in the next 24 to 36 hours, and about thirty hours after admission began to show periods of consciousness which increased steadily in duration and frequency. She showed orientation to situation but not to time or place, and had no memory of the accident itself. X-ray examination, using the portable apparatus, was carried out on the fourth day, revealing a fracture of the right parietal bone running from the vertex to the base. The patient's recovery subsequent to this point was steady and progressive until the tenth day when a complete right peripheral facial paralysis was noted for the first time. Mastoid films

*From the Departments of Surgery and Otolaryngology of Thayer Hospital.

now showed the fracture entering the mastoid process posterior to the middle ear. As this paralysis was not evident previously it was assumed that the nerve had been impinged upon but not severed, although the marked soft tissue swelling and unconscious condition of the patient may have masked this condition.

Otological examination showed the drum membranes now healed and evidence of absorption of the blood clot in the middle ear. The Weber test was lateralized to the right and tuning forks were heard in that ear by both air and bone conduction. Rinne test was 55/30. There was no evidence of involvement of the chorda tympani nerve. From these findings it was felt that the facial nerve was injured in the descending portion, as a fracture of the petrous, in all probability, would have involved the cochlea. While there had been some question of fracture of the neck of the mandible, this was ruled out by the X-rays and the satisfactory dental occlusion. Decompression of the facial nerve was advised, as soon as the general condition of the patient should permit.

Mastoidectomy with facial nerve decompression was performed on the twentieth day under general anesthesia. (F. T. H.) A fracture line was found extending through the superior wall of the external auditory meatus downward in an oblique direction towards the posterior wall and involving the aqua-

ductus Fallopii just below the prominence the prominence of the horizontal semicircular canal. There was considerable comminuted bone and granulation in the antrum and aditus and the dura over the antrum was found exposed. Bone was carefully removed exposing the facial nerve from the horizontal canal to the stylo-mastoid foramen. The nerve was found intact but with a small jagged portion of bone compressing it in the upper part of the descending portion, just below the horizontal canal.

The patient reacted well from the operation and was discharged from the hospital on the fifth day. At that time slight movement of the lower eyelid was evident. She was followed in the out-patient department, showing a slow but progressive return of function. Recovery of the facial paralysis was complete in five months.

SUMMARY

A case of severe head injury with skull fractures and facial paralysis is reported. Complete recovery followed decompression of the facial nerve with removal of a bone fragment compressing the nerve. The late manifestation of the facial paralysis, while possibly masked by the condition of the patient, suggested pressure injury of the nerve. This case indicates the importance of exploration and decompression in cases of facial paralysis following skull trauma.

GASTRO-INTESTINAL BLEEDING ASSOCIATED WITH HIATUS HERNIA*

FREDERIC B. CHAMPLIN, M. D., and JOHN O. PIPER, M. D., F. A. C. P.

Hiatus hernia as a cause of gastro-intestinal bleeding is frequently overlooked. Although the bleeding may be massive, and manifested by hematemesis, it is seldom fatal. More often it is occult and a search is made for the etiology of a hypochromic microcytic anemia without recognizing the fact that a para-esophageal hernia may be at fault. Hematemesis occurred in 21%, melena in 17%, and anemia in 23% of the cases reported by Morein.¹

A hiatus hernia protrudes through the para-esophageal ring of the diaphragm and develops its own peritoneal sac. This is the result of congenital weakness in this area, a congenitally short esophagus, or increased intra-abdominal pressure associated with chronic cough, pregnancy, vomiting, ascites, and straining at stool. Trauma to the anterior chest may be a precipitating factor.

The symptoms are often deceptive and vary ac-

cording to the size and type of herniation present. Harrington² has reported that as many as three previous erroneous diagnoses had been made before the correct diagnosis was established in 343 cases of hiatus hernia that he operated upon. The small hernias are asymptomatic as a rule. The large ones, particularly those that are fixed, may produce symptoms resembling those of peptic ulcer, gall bladder disease, coronary artery disease, intestinal obstruction, appendicitis, carcinoma of the cardia, and stricture of the esophagus. Dysphagia, regurgitation, dyspnea (exertional and at rest), epigastric, substernal, or left shoulder and arm pain, palpitation, gaseous eructations, nausea, vomiting, hematemesis, melena, and weakness are common symptoms.² Pain after eating, localized to the lower substernal area and relieved by the erect position, is suggestive of hiatus hernia. Hemorrhage, originating in a traumatic ulcer, is not uncommon. It may be severe, manifesting itself as hematemesis or melena. A microcytic hypochromic anemia, with accompanying

* From the Medical Service of the Thayer Hospital, Waterville, Maine.

occult blood in the stools, should direct attention to hiatus hernia as being a possible cause. The attacks, which are mild at first, usually increase in frequency and severity when the stomach becomes fixed in the thorax by adhesions.

The complications of hiatus hernia other than massive or occult bleeding are peptic or traumatic ulcer and volvulus. Perforation of an ulcer is rare. Volvulus seldom occurs but if present results in vomiting soon after the patient eats. In fact, the patient may initiate vomiting in order to relieve the substernal distress.³

The importance of recognition of chronic hemorrhage due to hiatus hernia prompts the reporting of a case which illustrates many of the classic symptoms of this type of hernia, as well as demonstrating other diseases so often found in conjunction with it.

Mrs. O. R., a white female, 70 years of age, first came to the attention of one of the authors (J. O. P.), in 1947. She was complaining of exertional dyspnea, substernal pain, and tachycardia. Her past history revealed that she had an appendectomy in 1906. A severe attack of measles occurred in 1930. In 1941, following an attack of jaundice, severe epigastric pain, nausea and vomiting, a cholecystectomy was done for chronic cholecystitis without stones. Gastro-intestinal series done at that time showed a large hiatus hernia. She developed recurring exertional dyspnea, substernal oppression, and tachycardia in 1945. These symptoms were noted when she climbed stairs, were associated with constricting sensations about her neck and wrists and were relieved by resting. She became aware of moderate edema of her feet and ankles, present at night and subsiding by morning. She consulted a physician and was told that her blood pressure was 180 and that her heart was enlarged. Treatment consisted of tincture of digitalis after meals and resulted in subjective improvement. In December, 1946, she had to sleep on an extra pillow because of moderate dyspnea and a non-productive cough which developed while the patient was in a recumbent position. Her blood pressure at that time was said to be 196.

She stated that she had had occasional attacks of sour stomach as long as could recall, manifested by sour eructations and a burning sensation in the epigastrium radiating upward in the substernal area to the throat. She could not tolerate fried or rich foods, pastries, gravies, pork or apples. These would produce epigastric distress approximately one-half hour after eating and relief was obtained by belching, walking around, or taking bicarbonate of soda. When she lay down after a meal she developed "sour stomach" and substernal pain, relieved by sitting or walking. Following the cholecystectomy in 1941, she was relatively free of symptoms and was able to do her own housework.

In 1947, she had pain in the upper substernal area which she considered to be indigestion and was relieved by bicarbonate of soda. It was at this time that she consulted one of the authors (J. O. P.). Examination revealed the lungs to be clear. The heart was enlarged 14 cm. to the left of the mid-sternal line in the 6th intercostal space. The rhythm was regular. A grade II systolic murmur was audible over the precordium. No areas of tenderness, abnormal organs or masses were felt in the abdomen. There was no edema of the extremities. She was considered to have angina pectoris and treatment consisted of vasodilator drugs and mild sedation. The exertional dyspnea and pain subsided on this regimen. However, she occasionally noted a sense of epigastric fullness, accompanied by belching and sour eructations occurring one-half hour after eating.

In August, 1948, she developed pain beneath the left scapula, which developed during exertion and was relieved by sitting quietly in a chair or lying down. She also noted "heart burn" which was relieved by bicarbonate of soda. Dyspnea occurred on bending over and subsided on assuming the erect position. Slight edema of the feet and ankles became apparent. Her blood pressure remained around 132/90.

Because of increasing dyspnea, orthopnea, and edema of the feet and ankles she was digitalized with digoxin in July, 1949. The dyspnea was present when she was working about her home, while walking up slight inclines, or climbing stairs. There was no paroxysmal nocturnal dyspnea. She also complained of a fairly persistent dull ache which was localized over the precordium and the right anterior chest. This was present at rest or during exercise and was not relieved by bicarbonate of soda or changes in position.

Examination in September, 1949, revealed a slightly dyspneic woman at rest with moderately distended neck veins. The color of her skin and mucous membranes was normal. Fine crepitant rales were heard at the base of both lungs. The heart was enlarged to the left anterior axillary line. The rhythm was regular. The rate was 96 per minute. A grade II systolic murmur was heard over the precordium, loudest over the base. The blood pressure was 174/70. The liver edge was palpable 4 cm. below the right costal margin. It was smooth and tender. There was moderate pitting edema of the feet and ankles.

She was considered by one of the authors (F. B. C.), to be in mild congestive heart failure and was given a mercurial diuretic. A low salt diet was recommended. She returned one week later with very little change in the dyspnea. The lungs were clear. The apical heart rate was 76 per minute and

regular. The liver edge was no longer palpable and the ankle edema had largely subsided. Her blood pressure was 150/70.

In March, 1950, she complained of feeling weak, tired easily, and could walk only a short distance without becoming dyspneic. She was examined and found to have a red blood count of 3,000,000 per cu. mm. and a hemoglobin of 40%. She was admitted to the Thayer Hospital for study.

The patient was very pale with a slight yellow tint to her skin. She was in good nutritional state. The lungs were clear. The heart was enlarged to the left anterior axillary line. The blood pressure was 145/90. No abnormal masses were palpable in the abdomen. The extremities were not remarkable. There was no lymphadenopathy.

The red blood count was 3,000,000 per cu. mm., with hemoglobin 30.5% (4.2 Gm.); white cell count 6,900 with a normal differential. Urinalysis was normal. Stool examination revealed a trace of blood by the benzidine test. Gastro-intestinal series and barium enema showed a large hiatus hernia of the stomach with an apparently short esophagus. (Fig. 1) Comparison with films taken in 1941 demon-



Fig. 1. March, 1950. A large fixed hiatus hernia of the stomach. Note constriction where the stomach passes through the diaphragmatic hiatus.

strated little change in the size and the appearance of the herniated portion of the stomach without evidence of an ulcer. There was fair motility with little retention in the upper sac. The intra-abdominal portion of the stomach and the duodenum were normal in appearance. There were numerous diverticula of the lower colon. The patient was placed on an ulcer regimen and was given blood transfusions, iron and vitamin B complex. Her condition improved and she was discharged after a hospital stay of five days.

Her course during the summer months was uneventful and she felt well and was asymptomatic until the middle of October, 1950, approximately seven months later, when she developed severe weakness, exertional dyspnea and passed black stools. She suffered severe pain which radiated across the epigastrium and was followed by vomiting. Although she spent the greater part of the time lying down she continued to feel worse and was readmitted to the Thayer Hospital on November 3, 1950. Her temperature was normal. Her skin was very pale and had a yellow tint. The mucous membranes and nail beds were pale. The lungs were clear. The heart was enlarged to the left anterior axillary line. The rhythm was regular and the rate was 85 per minute. No murmurs were audible. Abdominal examination was not remarkable. There was no edema of the extremities.

The red cell count was 1,700,000 per cu. mm. with a hemoglobin of 26% (4.4 Gm.); the white cell count was 7,000 with a normal differential. Serologic test for syphilis was negative. Urinalysis was normal. Stool was black and revealed the presence of considerable blood by the benzidine test. Bromsulfalein test showed 10% retention of dye at the end of one-half hour and 5% retention at the end of 45 minutes. Electrocardiogram (the three standard and the Wilson leads V_1 - V_6) revealed no abnormality other than left axis deviation. The treatment again consisted of an ulcer regimen, blood transfusions, iron and vitamin B complex. The patient was urged to sleep with the head of the bed raised to a forty-five degree angle. Her course in the hospital was uneventful and she was discharged 13 days later with a red blood count of 3,100,000 and a hemoglobin of 53% (8.3 Gm.).

At the present writing, January 22, 1951, this patient is asymptomatic. There is still four plus occult blood in her stools, even though the color is dark brown. Her red blood count has remained around 3,400,000 and hemoglobin 70% (10.2 Gm.). It is more than likely that surgery will be considered in the not too distant future.

DISCUSSION

The increasing recognition of esophageal hiatus

hernia may well be attributed to the diligence and perseverance exercised by the roentgenologists while doing barium studies of the gastro-intestinal tract. We have learned, as a result of their observations, that hiatus hernia is most common in well nourished, usually overweight, women past forty years of age. It is less common in men in nulliparous women under thirty years of age. Turner⁴ discovered hiatus hernia in 3.5% of 1500 patients, whereas Brick⁵ found the incidence to be 8.93% in 3448 patients undergoing roentgenological examination of the gastro-intestinal tract.

The most common diseases which have been found in association with hiatus hernia are gall bladder disease, peptic ulcer of the stomach or duodenum, and other hernias. This patient had chronic cholecystitis which was proved at operation and by pathologic examination of the gall bladder. Whether or not the gall bladder was responsible for the presenting symptoms in 1941 it is difficult to say. That such may have been the case is suggested by the fact that she felt better, and was reasonably free of symptoms following surgery for approximately four years. Bockus⁶ has noted that repeated attacks of biliary colic may be responsible for the development of hiatus hernia in late life. It is our opinion that the hiatus hernia antedated the gall bladder disease in this patient. However, we do not deny that repeated episodes of biliary colic may have aggravated the hernia.

It would be difficult to assume that she did not have coronary arteriosclerosis with associated angina pectoris. Certainly the constricting sensation in the neck and wrists during stair or hill-climbing, relieved by resting, suggests this likelihood. It may be impossible to distinguish between angina pectoris and diaphragmatic hernia. This is particularly so in an elderly, obese individual with an antecedent history of hypertension. Effler³ has commented on the association of anginal type pain in those patients with hernias which produce marked displacement of the thoracic aorta to the left. In such cases the patient may experience substernal or intermittent back or shoulder pain as well as exertional dyspnea. Portis⁷ has reported three cases in which it was impossible to differentiate clinically between angina pectoris and hiatus hernia. He stressed the importance of precordial distress recurring immediately after the ingestion of food and relieved when the individual belches or vomits. The history of hypertension, edema of the lower extremities, and exertional dyspnea which were relieved by mercurial diuretics and a salt poor diet, serves to substantiate the impression that a certain measure of cardiac decompensation was present. Circulation time and venous pressure, which were not done, would have aided us in the differential diagnosis.

The failure to demonstrate an ulcer in the herniated portion of the stomach by no means excludes its presence. We believe that the existence of such a lesion in this patient is a good possibility. It has been conclusively shown that barium studies may fail to reveal an ulcer in the herniated portion of the stomach.⁸

Although it has been assumed that this patient's melena and hypochromic anemia are the result of ulcer or erosions of the mucosa in the hiatus hernia, we have endeavored to exclude the co-existence of a bleeding lesion in the intestinal tract or liver disease. We have not been able to demonstrate such a possibility by gastro-intestinal series, barium enema contrast air, or blood chemistry determinations. However, this possibility should not be overlooked. Putney⁹ points out that bleeding is more likely to occur in cases of short esophagus than in acquired hiatus hernia.

The response to medical management, such as transfusions, bland diet, anti-spasmodic and ant-acid drugs, as well as suggestions for keeping the trunk at a forty-five degree angle when in the recumbent position has been satisfactory and has done much to alleviate this patient's symptoms. Surgery has been deferred because of the patient's age. However, if the melena persists, it will have to be considered seriously.

SUMMARY

1. Herniation of the cardiac portion of the stomach through the diaphragmatic esophageal hiatus may be responsible for either massive hematemesis or melena with associated hypochromic microcytic anemia.
2. The symptoms of hiatus hernia may be confused with those of angina pectoris, biliary disease, and peptic ulcer in the stomach or duodenum.
3. A case has been presented which demonstrates many of the features of gall bladder disease, hiatus hernia with bleeding, and coronary artery disease.

BIBLIOGRAPHY

1. Morein, S.: Diagnosis and Medical Management of Diaphragmatic Hernia. *Rhode Island M. J.*, 20:5 (Jan.), 1937.
2. Harrington, S. W.: Various Types of Diaphragmatic Hernia Treated Surgically. *Surg., Gynec. and Obst.*, 86:735 (June), 1948.
3. Effler, D. B.: Complications of Hiatus Hernia. *Cleveland Clinic Quarterly*, 17:58 (April), 1950.
4. Turner, J. W.: Gastric Herniation at the Esophageal Hiatus. *Am. J. Roentgenology*, 50:33 (July), 1943.
5. Brick, I. B.: Incidence of Hiatus Hernia and Associated Lesions Diagnosed by Roentgen Ray. *Arch. Surg.*, 58:419 (April), 1949.
6. Bockus, H. L.: *Gastroenterology*, 1944, W. B. Saunders Company, Vol. I, p. 151.

Continued on page 66

THE ROENTGENOLOGIC ASPECTS OF POLYPOSIS OF THE GASTROINTESTINAL TRACT

MOSES FREED LUBELL, M. D., Thayer Hospital, Waterville, Maine

During the last quarter of a century, there has been an ever increasing awareness of the importance of the gastro-intestinal polyp as a grave threat to the health and life expectancy of the individual. Many surgeons and proctologists as Rankin¹ and Buie² have written papers stressing the close relationship between polyposis and cancer, especially in the lower intestinal tract. The often quoted, close quantitative relationship between the regional distribution of polyps in the bowel, to the frequency of distribution of cancer in the same regions, is very significant.

Weber³ summarizes the opinion of representative pathologists to be that: I—Most cancers of the intestine begin as lesions which have the gross pathological appearance of polyps, and II—There is no sure way short of microscopic examination, not of a part but the whole of the lesion, of distinguishing the benign lesions from the malignant.

Most of the dispute regarding the malignancy of intestinal polyps is over those growths labeled as grade 1. Although these lesions are slow growing, statistics show what they take a small but definite number of lives. As Weber³ says, "A patient who dies of metastatic cancer five or more years after the extirpation of the original growth, is just as dead as the one who dies within a year."

The incidence of polyposis of the gastro-intestinal tract above the lower portion of the large bowel, is small, but the potentially malignant significance of these higher polyps must still be taken into account. Mikal and Campbell⁴ reviewed 85 consecutive cases of gastro-intestinal adenomatosis at the Boston City Hospital. They found the following regional distribution of their cases:

Stomach, 10; Duodenum, 1; Ileum, 1; Ascending Colon, 3; Transverse Colon, 6; Descending Colon, 7; Sigmoid, 5; and Rectum and Recto-Sigmoid, 69 cases.

Through common clinical usage, the term "polyp" is used to mean a wide variety of types of tumors of a pedunculated or sessile type. Bockus⁵ in a discussion of the pathological terminology of these tumors, points out that practically speaking, most of the lesions called polyps are epithelial hyperplasias, true adenomas or pseudo-adenomas and that therefore the terms adenoma and adenomatosis have come to be used interchangeably with polyp and polyposis.

The term polyp is a convenient label because it has general significance and describes the gross morphology of a histologically heterogenous group of lesions,

both benign and malignant neoplasms. These vary greatly in size. When the base is immediately attached, the polyp is termed sessile. When it is attached by a stalk, the lesion is a pedunculated polyp.

Neither the roentgenologist, the surgeon nor the pathologist can distinguish grossly between the varied histology of neoplastic and non-neoplastic tumors which have the morphological features of polyps. The exact nature of these tumors, it must be emphasized, can only be discovered by careful and competent microscopic examination.



Fig. 1. Two discrete round tumors in pre-pyloric segment of stomach which were called polyps. On operative removal tissue found to be ectopic pancreas.

A case in point is illustrated in Fig. I. A young adult with a long obscure history of gastric distress, was examined with a provisional diagnosis of gastric ulcer. Two small well circumscribed round lesions were found in the antral portion of the stomach which were called polyps. After gastric resection the pathological examination showed them to be composed of aberrant pancreatic tissue.

Besides the common adenomatous tumor, other benign lesions encountered in the form of polyps are listed by Weber in order of frequency, as lipomas, myomas, endometriomas, fibromas, angiomas, neurofibromas, teratomas, enterogenous cysts and others. Of the malignant lesions, carcinomata are of course

the most frequent. Sarcomata are encountered comparatively rarely.

The malignancy or potential malignancy of polypoid lesions varies with the pathologist and the method of classification. Series have been reported with ranges of malignant percentages varying from 6.5% to 62.5%.⁶ In the past many pathologists have maintained that malignant transformations of benign polyps never occur, that in malignant lesions the process has been malignant from the start. On the other hand the majority of pathologists and surgeons, writing recently, maintain that benign adenomas are but a stage in the pathogenesis of carcinoma, and that careful serial sections will show premalignant changes in the great majority of adenomatous polyps, and if they are allowed to remain in situ and if the patient lives long enough, they will become frankly malignant. There are no histological criteria which will allow the prediction of a benign course. Rankin states, "Of all the so-called precancerous lesions in the body, there is probably more definite proof that polyps of the colon are most likely to undergo malignant changes than lesions elsewhere."

The prevalent opinion therefore as well expressed by Christie⁶ is, "Removal of a polyp is one of the few procedures in medicine today whereby it may be affirmed confidently that cancer is prevented."

The question of multiple occurrence of polyps is important in the diagnosis. In the series quoted from the Boston City Hospital there were 58 cases of solitary polyp to 27 cases with multiple polyps.

The hereditary or familial background of histories of patients harboring polyps, is of great interest. As investigators dig deeper into the family histories of these patients the hereditary aspect grows more prominent. Those well defined cases of multiple disseminated heredo-familial polyposis present a grave surgical problem and have been intensively studied. While these cases are not rare, they are uncommon. Bockus finds only approximately 200 cases of this type in the literature. Clark and Parker⁷ report a well studied case of this nature in the August, 1950, number of this JOURNAL.

The etiology of polyposis has caused discussion. A great many factors have been cited and it is probable that no one cause is operative in all cases and that several modes of formation or aggravating factors are operative in an individual case. Bockus cites these factors as, (1) Inflammation — especially in association with chronic ulcerative colitis and intestinal parasitic infection. Inflammation is not present in all polyps.

(2) Chronic Irritation — this is undoubtedly a factor in the large bowel.

(3) Primary Epithelial Hyperplasia.

(4) Primary Subepithelial Hyperplasia—Aggre-

gations of lymphoid tissue occur which may be elevated, raising the mucosa.

(5) Hereditary Predisposition.

(6) Embryonal Defects — Misplaced embryonal rests.

The responsibility of the roentgenologist in the study of cases in which there is a history of bleeding from the rectum and in which a tumor is suspected, is a heavy one. In many instances several methods of examination must be employed and repeated examinations must be made to find a small bleeding polyp.

The protologic and sigmoidoscopic examination is an essential preliminary to the roentgenographic examination. Despite many efforts to improve the accuracy of the roentgen examination of the rectum and rectosigmoid by the use of ingenious methods of obtaining contrast pictures of this region, it is universally recognized that in this area, the direct examination is superior to the roentgen picture. Of course the utmost coöperation should exist between the surgeon or proctologist and the roentgenologist in order that there should be no tract left unexplored.

The finding of a polyp in the direct examination makes the roentgenographic colonic exploration all the more essential in order to rule out multiple lesions. During the last few years considerable work has been done on refinements of the barium enema.^{6, 8, 9, 10, 11} Among these is the use of tannic acid in the preparation of the enema. This medication, mixed in small concentration in the enema, stimulates contraction of the colon thus making a space occupying polyp stand out as a "bulge." The tannic acid also has an astringent action inhibiting the secretion of mucus, and it is believed also to increase the viscosity of the mixture and cause better adherence to the bowel wall. These factors operate to give a post-evacuation picture which shows a more uniform coating of the mucosa of the contracted colon. Tannic acid has been objected to because of its cramping action on certain patients and the lack of uniformity in results.

The use of air injection into the colon after its wall has been coated with an opaque barium mixture by means of a small barium enema followed by evacuation, produces a beautiful contrast picture showing the mucosal folds in relief. This procedure has been used in this country for 25 years, following its introduction in Austria and Germany. It should be recognized that for proper air-contrast studies the bowel must be carefully prepared to avoid artefacts. The air contrast produces beautiful relief pictures of small lesions which might not otherwise be seen. There is considerable discussion in the literature as to whether the air-contrast should be done as a routine procedure in every examination of the colon or whether its use should be reserved for the reexamination of cases in which there is some doubt as to the presence of

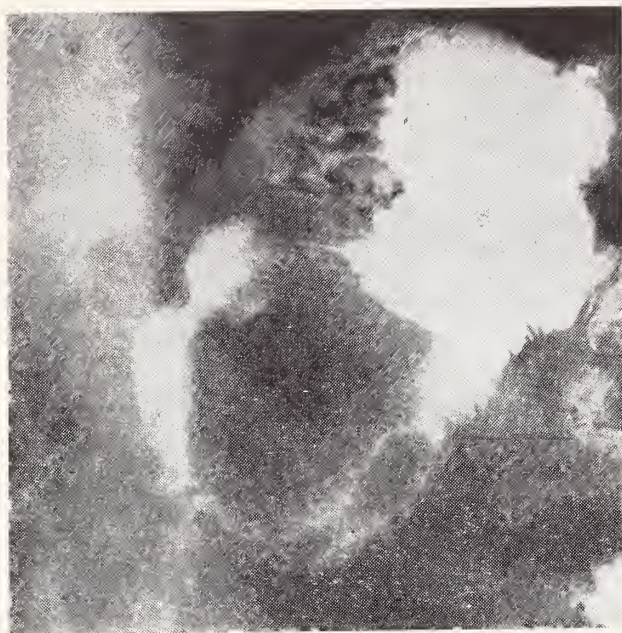


Fig. 2. Diagnosis of stalked polyp in distal duodenum made. This was checked by reexamination. At operation, tumor was not found. It had evidently been passed. Note duodenal ulcer.



Fig. 3. Polyp found only after repeated examination in sigmoid colon. This did not prove to be malignant.

small lesions. One of the reasons for this is that the optimal filling of the bowel until either the appendix or the terminal ileum is filled, is not the best technique for following with air inflation. However, in every case in which polyps are suspected, an air contrast study should be performed, if not at the first examination, then on reexamination.

Another interesting procedure is the use of high voltage technique to penetrate the opaque barium mixture and render it more translucent.¹⁰ This has the same advantage as the use of less opaque mixtures, such as colloidal thorium, which has not been used much in this country because of its dangers.

Bell⁹ states, in a recent paper on the examination of the colon, that the barium enema properly done to demonstrate the conditions present is probably the most difficult and time consuming of all radiologic examinations.

Proper catharsis is absolutely essential, even in bleeding, as a clean bowel is necessary to avoid artefacts and "fictitious polyps"⁸ caused by gas bubbles, oil droplets and fecal particles. By means of radiating an artificial colon containing various mixtures, Stevenson et al. have demonstrated the formation and best methods of avoiding these artefacts which sometimes simulate real polyps. Meticulous care in the details of preparation and radiographic technique are important.

A complete examination demands careful fluoroscopy during the administration of the enema, with spot films of all suspected areas to see detail. The patient must be turned in various positions and angles to see overlapping coils in varied projections. This is especially important in the sigmoid region where antero-posterior films do not reveal all details of the complicated flexures of the bowel.

The study of the small bowel demands serial films taken during the progress of a barium meal. A short cut in this region is the use of an iced saline-barium mixture followed by drinks of cold saline. This markedly reduces the time the opaque mixture takes to reach the cecum. Bockus¹³ in an interesting address on roentgenology in gastroenterology, cites the need for further careful study of the small bowel.



Fig. 4. Polyp of sigmoid, which showed low grade malignant changes.

Occasionally a stalked polyp found on radiographic examination may break loose and be passed so that the surgeon is not able to find it. An example of this occurrence is seen in Fig. 2. A single negative examination does not constitute adequate study. There are numbers of cases where the bleeding tumor was found only after two or more examinations.

Summary: The increasing importance attached to the polypoid tumors of the gastrointestinal tract as precancerous lesions or actual low grade malignancies, make it increasingly important that the fullest coöperation exist between the surgeon and the roentgenologist in the study of any case suspected of harboring gastrointestinal polyps. The radiologist must make a careful individualized search for lesions in the bleeding case, making full use of all modern refinements of technique.

REFERENCES

1. Rankin, Fred W.: Surgical Treatment of Polyps of the Colon. *Post Grad. Med.*, 5: 460-465, 1949.
2. Buie, Louis A.: Polypoid Disease of the Colon. *Post Grad. Med.*, 5: 177-183, 1949.

3. Weber, Harry M.: Significance of the Intestinal Polypoid Lesion. *J. A. M. A.*, 142: 693-697, 1950.
4. Mikal, S., and Campbell, A.: Solitary and Multiple Adenomatous Polyps of the Gastrointestinal Tract. *N. E. J. of Med.*, 242: 745-747, 1950.
5. Bockus, Henry L.: *Gastroenterology*. Phil., W. B. Saunders Co., 1946.
6. Christie, A. C., Coe, F. O., Hampton, A. O., and Wyatt, G. M.: Value of Tannic Acid Enema and Post Evacuation Roentgenograms in Examination of the Colon. *Am. J. of Roent.*, 63: 657-664, 1950.
7. Clark, F. B., and Parker, J. M.: Familial Polyposis of the Colon. *J. of Maine Med. Ass.*, 41: 331-335, 1950.
8. Stevenson, C. A., Moreton, R. D., and Cooper, E. M.: The Nature of Fictitious Polyps in the Colon. *Am. J. of Roentgen*, 63: 89-94, 1950.
9. Bell, Joseph C.: General Considerations in the Roentgenologic Examination of the Colon. *Radiology*, 55: 20-23, 1950.
10. Gianturco, Cesare: High Voltage Technique in the Diagnosis of Polypoid Growths of the Colon. *Radiology*, 55: 27-29, 1950.
11. Moreton, R. D.: *The Roentgenologic Examination of the Colon*. Scott & White Clinic, Temple, Texas, 1949.
12. Rigler, L. G., and Erikson, L. G.: Benign Tumors of the Stomach. Their Incidence and Malignant Degeneration. *Radiology*, 26: 6-15, 1936.
13. Bockus, H. L.: The Role of Roentgenology in Gastroenterology. *Am. Roent. Ray Soc.*, Cauldwell Lecture, 1950.

ACTH AND CORTISONE IN OPHTHALMOLOGY

HOWARD F. HILL, M. D., RICHARD H. DENNIS, M. D., and CHARLES E. G. SHANNON, M. D.

The therapy of ACTH and cortisone has assumed a dramatic role in ophthalmology.

Following the work of Hench, Kendall, Slocum, and Polly,¹ in 1949, at the Mayo Clinic on the effect of ACTH and cortisone, there has been an ever increasing employment of these substances in many conditions including ocular diseases.

The purpose of this paper is to consider the ophthalmological application of these therapeutic agents. The physiological properties, mode of action, indications and contraindications will be discussed elsewhere in this symposium. Presented here are the ocular dosage and mode of administration and the conditions in which it seems effective. Our own clinical experience is briefly evaluated.

Initially it is of interest to note that ophthalmologists have been using this therapy for many years in the form of fever therapy. The action of the adrenal cortex and its stimulation is well described by Arendorst and Falls.² There is evidence that the foreign protein reaction releases a train of hormonal stimulation bringing about the liberation of cortisone from the adrenal cortex. As in regular cortisone therapy, the efficiency of fever therapy can be evaluated by following the eosinopenia. The weakness of this method is that with repeated fever inducing therapy,

the efficiency rapidly diminishes as the individual becomes more immune to the fever bouts. Usually five or six repetitions of the injections are all that can produce the required response.

This difficulty is not encountered with ACTH and cortisone in parenteral administration.

During the early phases of treatment of ocular diseases with these agents, parenteral administration was employed and, as with treatment in other general conditions, variations in individual reactions were encountered. The eosinophilic count was discovered to be a simple and remarkably accurate method of determining each patient's response.³ From a normal of 200 per cubic millimeter they may drop to any level or disappear. ACTH can be given in 80-100 mg. doses, every six hours for three to four days. This dose is cut down gradually to as low as 20 mgs. Patients with ocular conditions have been maintained for six to eight weeks on these dosages with no untoward effects. The dose of cortisone usually is 300 mg. the first day, 200 mg. the second day, and 100 mg. thereafter up to two weeks.

Recently cortisone became available for topical application in the eye. Although, as yet, there is little reported in the literature, it has been found to be equally, if not more effective in conjunctival, cor-

neal and anterior segment disease than with systemic use. The dosage has varied from hourly instillations of the undiluted suspension in which there is 25 mgs. of cortisone in one cubic centimeter, to one to two, one to four, and one to eight dilutions used at longer intervals. Some patients can be carried along, after more frequent therapy, on one drop a day. Topical use is the method of choice in ophthalmology for the following reasons:

1. There are no untoward generalized side reactions such as may be encountered in systemic use.
2. Its extremely easy application, and the drug may be obtained on prescription.
3. It is inexpensive in the dilutions used.
4. It does not require hospitalization.
5. It is more easily absorbed into the anterior segment, probably through the cornea, and in higher concentration, than by parenteral administration. Although it is now available for oral administration, this carries the possibility of the same side effects and has the same contraindications as in parenteral therapy.

It must be stressed that very often the hormone merely suppressive symptoms, making the patient comfortable, while a disease process is still alive, or only held in abeyance. Therefore, the underlying eye disease should have adequate treatment. This was dramatically demonstrated in a patient with a large dendritic ulcer. She suffered agonizing pain which was completely relieved by cortisone. The eye became white but the slit lamp examination revealed the ulcer to be just as before, with absolutely no improvement in its appearance. After denuding and cauterizing with iodine, the cortisone was continued. Healing took place without the usual postoperative pain. Healing of the epithelial layer is not interfered with by cortisone and it does lessen scarring.⁴ In deep wounds such as the cataract section, however, cortisone is reported to delay healing.

The ocular conditions in which cortisone therapy appears most effective are:

1. Rheumatic iritis.
2. Chronic uveitis of unknown etiology (parenteral therapy may have to be used).
3. Staphylococcus keratitis.
4. Allergic conjunctivitis.
5. Sympathetic ophthalmia (parenteral therapy).
6. Alkali burns of the cornea.
7. As an aid to other treatment in most inflammatory diseases of the anterior segment.

Its use in other conditions is constantly being studied and more proven areas of usefulness are being added.

Since cortisone became available, we have had several cases falling into the above categories. We have been cautious in its use when systemic dosages were

given and have had no complications. Later, topical use has been equally effective and has shown no untoward effects even with prolonged use.

Several cases of allergic conjunctivitis have had complete relief. This series includes one case that has now been on one drop daily for nearly two months and reports complete comfort for the first time in many years.

One case illustrates the dramatic effectiveness of cortisone. A woman, fifty years old, has had reoccurring attacks of rheumatic iritis for eight years. Under treatment her attacks have lasted two or three weeks in the past. She was seen with an acute attack in the right eye of four days' duration. Examination revealed many posterior synechiae. Atropine failed to relieve her symptoms and on the sixth day she was hospitalized for cortisone therapy. Her symptoms were relieved and the eye became white in three days. After five days she was discharged, apparently convalescent. The iritis reoccurred in twenty-four hours. At this time, solutions for topical administration were available. With one drop of one to four dilution every two hours, the eye cleared in twenty-four hours. She was kept on one drop, t.i.d. for ten days, without reoccurrence of symptoms in this eye. During this time, however, iritis developed in the left eye. Cortisone drops relieved this attack in twenty-four hours. After stopping all therapy, there has been no recurrence for six weeks.

Two cases of staphylococcus keratitis, one of which has been resisting other therapy for sixteen months, have responded quickly to cortisone.

One case of long standing chronic iritis and secondary glaucoma in a blind eye was so painful that the patient begged for an enucleation, but obtained complete relief with a lowering of the tension and clearing of the aqueous with cortisone. It has now been three months since stopping the hormone therapy and the tension remains elevated, but the patient has no complaint and the eye is quiet.

Many types of ocular disease are being treated and evaluated, but it is too early to report definite or permanent results as yet.

In closing, we should stress the great aid to the ophthalmologist in the use of these new therapeutic agents. We have a great advantage in the fact that cortisone can be used topically without the usual danger of side effects that may occur with its parenteral therapy. It must be emphasized that cortisone often suppresses symptoms and the disease process continues and the disease must be adequately treated.

- (1) Hench, Kendall, Slocum, Polly: Proceedings of Staff Meetings of Mayo Clinic, 24, 181, '49.
- (2) Arendhorst, Falls: Archives of Ophthalmology, 44, November, '50.
- (3) Woods: American Journal of Ophthalmology, 33, September, '50.
- (4) Personal communique, Dr. Warthen, Meeting New England Ophthalmological, Dec., '50.

THE LABORATORY IN ACTH AND CORTISONE THERAPY

IRVING I. GOODOF, M. D.*

As is the case with any type of treatment, the use of adrenal or adrenal-stimulating hormones requires a means of evaluating the results of treatment and of predicting and avoiding the occurrence of undesirable effects. The laboratory, if used intelligently, can provide much information along these lines.

The simplest, most commonly used test is the enumeration of eosinophiles in the circulating blood. The depression of the eosinophiles to less than 50% of the initial count, or even to complete disappearance from the circulating blood, constitutes adequate response to either cortisone or ACTH. In the absence of such a response it may be assumed that the effect of the drug in the dosage employed is not clinically significant. In some patients, with "adrenal cortical exhaustion" this response may not be obtained with ACTH. If this is the case, and therapy is indicated, absence of the eosinophile response suggests that cortisone may be the drug of choice.

Some patients show an initial eosinophile count which may be lower than the accepted normal. It has been shown that in patients whose initial count is below 100 per cubic mm. of blood, the danger of development of overdosage phenomena with ACTH is great. The use of initial small doses of ACTH is suggested in these patients. Treatment with cortisone may be necessary to achieve clinical effect.

On a short term basis, there are several other striking results of administration of these drugs. A large dose of ACTH, given over a 24-hour period, will produce oliguria with increased specific gravity, sodium and chloride retention, loss of potassium, and glycosuria. A marked increase in excretion of uric

acid, gluco-corticoids, and 17-ketosteroids occurs. These changes return to normal levels within three to four days.

The importance of this short term type of study cannot be overemphasized, since it corresponds exactly to the reaction seen in patients who undergo major surgical procedures. In the presence of normally functioning adrenal glands, most of the above mentioned changes will take place to some degree. In the poor surgical risk, these alterations in metabolism and electrolyte balance may be sufficient to produce increased morbidity and mortality. In such a patient the actual determination of sodium, potassium, chloride, and carbon dioxide levels, with correction if necessary, may be the determining factor in the outcome of the case. An eosinophile count after surgery is of great value in detecting normally functioning adrenals, with consequent reassurance as to the probable post-operative course.

In a prolonged study with ACTH, the effect on carbohydrate metabolism was found to be an important and interesting problem. At the initiation of treatment renal glycosuria develops, due to decreased renal reabsorption of glucose. After 24 hours of ACTH, hyperglycemia and diabetic glucose tolerance curves appear, together with increased urinary excretion of uric acid. The diabetes produced is relatively insulin resistant. The administration of reduced glutathione to a patient with ACTH-induced diabetes results in temporary cessation of glycosuria and a fall in blood sugar. In the same type of study, a negative balance for nitrogen and potassium occurs. Retention of sodium and chloride occurs early, followed by increased excretion. In each instance, hypochloremic hypokalemic alkalosis appears, accompanied by some lowering of the serum sodium.

* From the laboratories of the Thayer Hospital, Waterville, Maine.

As in the case of other highly infectious diseases, the spread of tuberculosis can only be controlled by the isolation of the patients with active, sputum-positive infection from those who are susceptible to the disease but who have not yet contracted it. This is not being done and cannot be done among the American Indians for whom hospital accommodations are not provided by the Bureau of Indian Affairs and for whom funds are not available to expand the contractual service with non-government-operated sanatoriums.—Fred T. Foard, M. D., *J. A. M. A.*, February 4, 1950.

Surveys have shown as much as four times more active tuberculosis among people 65 to 74 years of age than among the age group 15 to 24. Moreover, it appears that the disease more frequently goes unrecognized in the older population. In the Washington, D. C., survey, only 4 per cent of the older cases processed by the survey (aged 65 and over) were previously known to the health department, as against 25 per cent of the group 34 years of age and under.—*Journal-Lancet*, Robert J. Anderson, M. D., April, 1950.

EARLY RECOGNITION OF STRABISMUS

A Plea for Prevention of Partial Blindness in One Eye

RICHARD H. DENNIS, M. D.

A squint or strabismus in a child is a very serious condition. It may effect his entire life, socially, economically, and psychologically. Because of this, the condition should be recognized early as in most cases it can be corrected. It is the purpose of this article to make a plea to those doctors who care for these patients in their early years for such early recognition, to point out the handicaps of squinting, to discuss briefly some causes of squint, to indicate some methods of diagnosis and to mention some of the principles of treatment.

A squinting child's handicaps are varied and are both direct and indirect. The primary physical one is a decrease or loss of useful vision in one eye. It is often neglected at the home because the child continues a normal active life due to the good vision retained in the other eye.

Secondary to the poor vision, the child loses his binocular single vision and has a corresponding loss in spacial and distant judgment.

These first two combine later in life when the patient should become a useful citizen, and present serious economic difficulties. He is limited to the positions he may obtain particularly in industry where good vision in both eyes is usually demanded, and where binocular single vision may be essential.

The squint is a social stigma which harasses the patient all of his life. Earlier it might lead to psychological states with inferiority defects. These children are often the butt of jokes from their unwitting young associates. Such influences are carried on into later life and may exert a continuing detrimental effect on his social status.

It is well worthwhile to present briefly a few of the causes of squint in children. These have been grouped conveniently under four different headings on an anatomical basis by Sugar.¹

1. Interference with accurate perception of light by the eye itself.
 - (a) This is often due to refractive errors, a condition we can discover and correct even at an early age. Glasses can be put on a child as early as one and a half years.
 - (b) Actual anatomical opacities in the structures which must be transversed by the light may impair the vision in one eye and establish the squint. This type of defect, of course, is less easily corrected—sometimes not correctible at all.

- (c) Disease of infectious or degenerative origin involving the retina and optic nerve can prevent the accurate perception of images. Once damage has been done in this manner, it is usually irreparable.
2. Central Cranial Difficulties.
 - (a) Conditions involving the brain directly may, of course, interfere with passage or evaluation of impulses from the eyes and to the oculomotor nerves. Severe generalized illnesses such as those associated with high fevers frequently leave residuals involving strabismic conditions.
 - (b) Emotional stress of severe nature may precede the appearance of squints. Some authors believe even the hyperexcitability associated with teething can cause enough psychic disturbances to convert a latent to a manifest squint.
3. Anatomical interference with movements of the extra ocular muscles.
 - (a) Congenital paresis.
 - (b) Orbital disease — inflammation of the orbital tissue, tumor, exophthalmos following hormonal imbalances.
 - (c) Direct muscle involvement such as in trauma, myasthenia gravis. Birth injuries with subsequent muscle fibrosis is an occasional cause.
 - (d) Postoperative anatomical results.
4. Nerve involvement.
 - (a) Agenesis.
 - (b) Hemorrhage such as that which may follow difficult delivery either spontaneous or with forceps. This may press on or destroy nerve fibres either perceptive or motor in function.
 - (c) Direct trauma through accident to the nerves.
 - (d) Aneurysmal pressure.

When a patient has a definite squint, it is seldom neglected for the families of these children will notice that the eyes turn or that one or the other eye wanders or that something just does not seem right with the child's eyes. In most cases, the child will then be brought to a physician for the express purpose of having him "look at the child's eyes."

Often, however, the child has only an occasional strabismus or a very small amount of deviation which, even though constant, is not regarded as anything particularly wrong. However, these are just as inimical to the patient's eyes as the large and obvious deviation. They are the ones that the family does not worry about. They are the ones which should be searched for and brought in for treatment.

These strabismic conditions, be they large, occasional or tiny, are all true squints and are called tropias. It is important to distinguish between a tropia, which is a manifest definite deviation, and a phoria, which is a latent deviation. The latter comes to the fore when one eye is suppressed as in periods of inattention or when one eye is covered up. A tropia is dangerous because very soon the child loses the ability to obtain binocular single vision with low depth perception—or never develops it at all. On the other hand, a child can have a high degree of phoria but because he can hold the eyes in parallel position, he can learn to develop binocular single vision and can maintain it. Therefore, the one condition—a tropia must be treated early in life to place the eyes parallel. The other, the phoria, does not require treatment unless it is very high and then not until later in life. There are three types of phorias and three types of tropias, outward, inward, and vertical.

The diagnosis of the presence of strabismus and its differentiation from a phoria is not difficult. It is probably not possible to make a decision on the presence or absence of a squint until the age of six to eight months. An accurate evaluation of the type and amount of squint and a determination of the necessary treatment cannot be made before fourteen to eighteen months. According to Gisell,⁴ a child does not begin to follow a moving object until the age of five or six months, and does not regard anything in small detail until much later, twenty to twenty-four months. Some authorities feel that an accurate evaluation can be made of some squints as early as one year when they can even be operated.⁴ Most workers in this field seem to agree that binocular vision may be regained following treatment as late as the age of three or four but not as easily. Treatment should be begun not later than the age of three and earlier if possible.

Some of the factors in diagnosis may be discussed briefly.^{1, 5}

1. History—as in all phases of medicine, the history is important.
 - (a) The mother can usually tell whether she thinks the eyes turn in or out and often whether it is one or both eyes.
 - (b) Age of onset should be determined. One present at birth may be purely mechanical or due to birth injury. One that develops later may be due to poor vision.

- (c) Type of delivery — spontaneous or forceps. Long labors.
 - (d) Family history of any similar ocular troubles.

2. Inspection.

- (a) Simple examination, often merely a close look at the child's eyes is enough to determine the presence of a squint. It is admittedly difficult to have a child fixate but even the most recalcitrant usually will look for a moment or two at a bright object—an interesting and unusual thing or a flashlight.
 - (b) Hirshberg test. This simple accurate test is done with a pen light or other small source of light. It is held pointing at the patient's nose while the examiner looks directly along the axis of the light toward the patient. The reflection of the light may easily be seen in the cornea. If it is in the center of the pupils, the eyes are straight. If it is even slightly off in one, it is easy to determine even in the brief time that a small child will look at the light.
 - (c) Beware of epicanthus. Patients with very wide bridges of the nose often give the appearance of an esotropia because the pupil is closer to the inner than the outer canthus of the palpebral fissure. A quick inspection by the Hirshberg test will show the light reflection in the center of the pupils in the normal child.
 - (d) Closure or partial closure of one eye may indicate that the eye is turning and the child is suppressing its bothersome image by closing its lid.
 - (e) Head tilt or lateral turn. If an ocular muscle is paretic, the patient often puts the head in the position most favorable to obtaining binocular vision. If it is an oblique muscle or a superior or inferior one, there may be a head tilt. If a lateral muscle is paretic, the child tends to turn the head in the direction of action of that muscle.
 - (f) Poor judgment of the child in attempting to pick up objects or to place their feet may be a result of inability to use the two eyes together.

3. Visual acuity can roughly be obtained. It is merely necessary to determine that the child can use either eye about equally. Small objects can be placed on the floor to be picked up. One eye can briefly be covered. If the child continues to look at a flashlight or other object with the uncovered eye, he obviously sees with it. If he pulls his head away and tries to

maneuver it so as to use the covered eye, he probably does not see too well with the one being tested.

4. Distinction between phoria and tropia. This may present no problem whatsoever if the child has an obvious constant manifest squint. In doubtful cases, a quick determination can be made by covering what is thought to be the fixing eye. If only the eye under cover moves, be it in or out, a phoria is present—a latent deviation brought out by the momentary suppression of the eye. If both eyes move, a squint is present because the uncovered eye is moving to take up fixation.

Treatment is aimed at:

1. Equalizing vision in the two eyes, improving to normal if possible.
2. Placing eyes in parallel position, at least in the eyes front position.
3. Developing of normal binocular single vision as a final ultimate goal.

Treatment should be instituted early. As indicated above, some treatment such as glasses or even surgery can and have been done at the age of one and a half years. Usually if adequate treatment is instituted by the age of three although it is unwise to wait this long, there is still a real likelihood that the first two handicaps may be avoided. It is generally undisputed that the state of binocular vision is still fluid at this time and vision may be expected to increase. With the eyes placed in the parallel position, it can reasonably be expected that binocular vision may develop.

All newborn children should be examined with the ophthalmoscope. A family history should be obtained. If there is a family incidence of poor vision, high refractive errors and especially squints, the child should be subjected to an atropine refraction as early as the age of one. This will best allow the vision and binocularity to develop naturally and the squint may be avoided in this early very fluid state.

Direct treatment has three methods of approach, optical, orthoptic and surgical.

1. Optical. The correct glasses should be fitted and worn constantly. Full atropine correction is usually prescribed, being careful not to overcorrect myopes. When the squint is abolished by atropine, the glasses will usually be sufficient. If glasses, however, are ineffective after one month, it is probable that they will not correct the squint.

2. Orthoptic. In this approach to the problem, an effort is made to train the child through the medium of machines, cards, and exercises to use the two eyes together and eventually to develop useful binocular vision. This type of treatment requires a considerable amount of coöperation on the part of the patient. It is difficult to maintain the interest of a young child for a very long period and it is just these young pa-

tients who must be treated before getting into the age where treatment is little but cosmetic. There are many proponents of this type of treatment and discussions concerning it are frequent and hot and spirited. However, many men feel that orthoptics cannot be instituted successfully at an early enough age.⁸

Correction of amblyopia through patching is a form of orthoptic training which is useful and often essential. The usual aim of equalizing the vision in the two eyes is the goal here. To this end the better eye is patched, forcing the child to use the poorer. Patching should be total and constant day and night, using a gauze bandage applied with adhesive tape. The vision in the eyes must be checked not less than every two weeks. When the vision in the poor eye equals that in the other, patching is discontinued. If two months of patching does not improve the vision, it may be considered useless and discontinued.⁷ Care must be taken not to transfer the poor vision to the other eye by occluding it too long which is the reason for the bi-weekly check. If the vision can be maintained at an equal level, there is some possibility of improving the squint. If, however, the squint does not improve even though the vision remains equal in the two eyes, surgery should be instituted.

3. Surgery. If other methods fail, this should be employed early in life, that is, before the vision has become permanently impaired and all binocularity lost. The aim of surgery in the young is to make the eyes parallel at least in straight ahead position thus allowing the eyes to function together and develop, if possible, binocular vision.

Children have successfully been operated on as early as one year.⁴ Useful vision has been recovered following surgery later in life and some improvement in the vision of the strabismic eye may be expected when surgery is employed as late as four years of age. Surgery done much later than five or six years of life may be done, but no encouragement that vision will be improved should be tendered the parents. After this period, a cosmetic result is the only justification upon which surgery may be urged. From the social and psychological standpoint, it is certainly worthwhile to correct a disfiguring squint as this avoids the last of the handicaps previously mentioned.

SUMMARY

This paper has been a plea for early recognition of strabismus. It is generally agreed that children should be examined for squint at the age of one or one and a half years using some of the methods above mentioned. Definitive treatment should begin then if the strabismus is found. Waiting until later can do no good and can only do damage. Uncorrected squint causes a progressive loss of vision in one eye, while the other eye stays normal. Thus, the child

continues its normal life and the urgent necessity of correcting the deviation often is overlooked. The recovery of the lost uniocular vision is progressively more difficult as the child gets beyond the age of one and a half to two. It is imperative that these squinting children's eyes be straightened by one or a combination of 1. glasses, 2. orthoptic training, 3. surgery. This straightening must be accomplished early to prevent the uniocular loss of useful vision. In order to point out what is possible to do for these children, a brief résumé of methods of treatment has been presented.

BIBLIOGRAPHY

1. Sugar, H. Saul: *Extrinsic Eye Muscles*.
2. Chavasse, F. M.: *Worth's Squints*, Ed. 7, Blakiston's Son & Co., 1939.

3. Gisell, A.: *Mental Growth of The Pre-School Child*, 1925. MacMillan Co.
 4. Spaeth, E. B.: *Principles and Practice of Ophthalmic Surgery*, Lea and Febiger, 1948.
 5. Scobie, Richard: *The Oculo Rotary Muscles*, 1947. Mosby.
 6. Wheeler, M. C.: *Lectures on Extra Ocular Muscle Surgery given at the Academy of Ophthalmology and Otolaryngology*, Chicago, October, 1950.
 7. Dunnington, J.: *Lectures on Extra Ocular Muscle Surgery given at the Academy of Ophthalmology and Otolaryngology*, Chicago, October, 1950.
- Bielschowsky: *Lectures on Motor Anomalies of the Eye*, *American Journal of Ophthalmology*, 13, 1935.
- Adler's *Revision of Gifford Textbook of Ophthalmology*, Saunders, 1948.

CLINICAL USE OF ACTH AND CORTISONE*

GEORGE J. ROBERTSON, M. D.

Since these hormones of the pituitary and adrenal glands have been widely publicized and are now available for general use, the practitioner is faced with the necessity of using them when indicated. This demands an intimate acquaintance with their physiology.

Under the stimulation of stress situations the pituitary gland produces adrenocorticotrophic hormone which stimulates an intact adrenal cortex to produce its hormones which may for practical purposes be classified as salt, sugar, and nitrogen hormones. This results in a retention in the body of sodium, of water, and of nitrogen. A loss of potassium, glycosuria, hyperglycemia, and eosinopenia occur. Androgenic effects are also noted. ACTH causes increased urinary ketosteroid excretion. Cortisone causes a drop in 17-ketosteroid excretion. Cortisone has strong sugar hormone effects and is an 11-oxysteroid. Its effects on salt retention, potassium loss and nitrogen retention are much weaker than ACTH. Aside from these factors, these hormones may be considered as producing similar physiologic and clinical effects and in general they can be used interchangeably. ACTH causes hypertrophy of the adrenal gland and produces its clinical effects by inducing the patient's own adrenal to produce Cortisone or Cortisone like compounds. Cortisone produces adrenal atrophy and its clinical effects are direct. Permanent adrenal atrophy has not been produced by Cortisone nor adrenal exhaustion by ACTH.

Clinical side effects produced by these hormones are: moon facies, recession of temporal hairline,

acne, hypertension (ACTH), decreased tolerance to glucose, hirsutism, clinical hypopotassemia, edema with sodium retention and pigmentation. These are features commonly seen in Cushing's disease and are all reversible with cessation of therapy. (Some cases of progressive and fatal hypertension have been reported.)

In the diseases in which ACTH and Cortisone are useful, they do not cure the disease but seem to give tissues a buffer against the irritants supplied by the disease entity. In chronic disease therefore, when therapy is stopped, disease returns.

Conditions in which the use of these hormones is indicated: Panhypopituitarism (ACTH), Addison's disease (Cortisone), acute alcoholism, alcoholic psychosis, Korsakoff's syndrome, status asthmaticus when usual remedies have failed, periarteritis nodosa, lupus, erythematosus, acute rheumatic fever, eosinophilic disease, certain eye infections, severe burns.

Useful: Hemolytic anemia, leukemias, multiple myeloma, preparation of chronically ill patients for surgery, chronic asthma, gouty arthritis.

Of little or no use: Neuromuscular diseases, as muscular dystrophies and atrophies, poliomyelitis, chronic nephritis.

Contraindicated: Cardiovascular disease, peptic ulcer, tuberculosis, diabetes mellitus (?), Cushing's syndrome, osteoporosis.

The following minimal precautions and tests are helpful before and during therapy in guiding the physician as to which hormone and what dosage to

* From the Medical Service, Thayer Hospital.

use: eosinophile test with epinephrine or ACTH before therapy, eosinophile counts during therapy, serum chlorides in similar manner, daily weights, and daily blood pressures.

Dose varies with disease and patient. In general, with chronic disease, early large suppressive doses are used, such as Cortisone 100 mgms. every eight hours for the first day, b.i.d. the second day, and from the third day on 100 mgms. daily until maintenance dose is attempted. Maintenance dose of less than 50 mgms. daily is highly unusual. ACTH may be started as 25 mgms. every six hours intramuscularly until clinical effect is obtained. Drop dose by 5 mgms. decrements until effective maintenance dose is found. 5-20 mgms. every six hours may be the effective maintenance dose. This is for Armour's product. Wilson laboratory ACTH may be one and one-half to three times as potent as Armour and dosage is therefore smaller. Astwood has produced fractions of ACTH which are effective in extremely small doses such as 2-4 mgms. Long acting ACTH is not yet generally available. ACTH must be given at eight-hour intervals or less.

Sodium retention, potassium loss, and water retention are most apt to occur in the first few days of treatment. Low sodium diet, potassium 1-3 grams by mouth, and mercurial diuretics will rid the patient of edema and will correct the electrolyte imbalance. Hormone therapy does not usually have to be interrupted.

The price of these two hormones is at the present time somewhat prohibitive. ACTH is \$100.00 per gram. Injectable Cortisone is \$35.00 per gram. Oral Cortisone is now available and equally effective and is \$28.00 per gram. The cost to the patient with either drug is about the same because of the necessity for larger dosage with Cortisone. Cortisone has the advantage of having less side effect, requires less frequent injections, and now can be given orally.

A special paragraph might be written about rheumatoid arthritis since in this entity ACTH and Cor-

tisone have been most widely publicized and arthritics are all interested in these hormones. At this date we are using ACTH and Cortisone for elderly rheumatoids who are not in their first attack, for those who are crippled by the inflammatory joint changes of their disease. Conservative treatment is still preferred in those rheumatoid arthritics in their first attack, especially when seen early, in mild rheumatoids, and in general in the young adult rheumatoids.

We do not as yet know the long term side effects of these hormones. Information is gradually accumulating and such reports as increased incidence of thrombotic phenomena, increase in blood cholesterol with drop in basal metabolism, perforation and hemorrhage of peptic ulcers, masking of infectious processes, fulminating tuberculosis, and convulsive seizures as complications of therapy with these hormones warrants withholding of their use in young and middle-aged individuals whenever possible. These hormones should not be used when the disease to be treated is amenable to known methods. The complications which we have already seen in private practice are: abscess following Cortisone injections, bronchopneumonia with the patient having no complaints referable to pneumonia, water retention responding to mercurial diuresis without cessation of therapy, hemorrhage from duodenal ulcer in a patient being treated with ACTH for moderately extensive burns, manic psychosis in a patient with psoriatic arthritis.

REFERENCES

1. Thorn, George W., Forsham, Peter H., Frawley, Thomas F., Hill, S. Richardson, Jr., Roche, Marcel, Staehelin, Dietrich, and Wilson, D. Laurence: "The Clinical Usefulness of ACTH and Cortisone," *The New England Journal of Medicine*, 242, 783-792, 824-872, and 865-872, 1950.
2. Mote, John R.: "Proceedings of the First Clinical ACTH Conference," Philadelphia, Toronto, Blakiston Company, 1950.

In various forms — whether poliomyelitis, tuberculosis, cardiovascular disease, diabetes or any of the other abnormalities that are likely to alter a patient's social and economic activities — these chronic conditions account for three-fourths of all illness today. Progressive control of infectious diseases and the increasing number of elderly people in the population are bringing about a situation in which the chronic illnesses and preventive medicine may in the future demand the entire attention of physicians.—Editorial, *New England J. Med.*, August 10, 1950.

Even though control measures are only one factor in the eradication of tuberculosis, they may very well be the decisive factor. Anything which will reduce the size of the reservoir of the tubercle bacillus in human beings will lessen the number of new cases of tuberculosis. Every case of the disease, actually or potentially infectious, which is discovered and brought under control is a step in reducing the size of this reservoir.—A. C. Christie, M. D., *Pub. Health Reports*, June 2, 1950.

DIZZINESS AND VERTIGO IN DAILY PRACTICE*

LORING W. PRATT, M. D., Thayer Hospital, Waterville, Maine

One of the interesting and frequently baffling problems seen by the general practitioner, which often needs special evaluation, is that of dizziness and vertigo. While often due to some relatively simple disorder, a substantial group of such cases do have some grave underlying pathological condition. For that reason, it behooves the general practitioner to have definite criteria on which to decide which patient will do well on medical regimen and which one should be referred for special study. The purpose of this paper is to provide such criteria and indicate the importance of various diagnostic procedures in accurately diagnosing the lesion.

In order to better understand the problem of instability, it is well to briefly review the factors which operate to maintain normal equilibrium. By an understanding of the normal balancing mechanisms, it will be easily possible for us to point directly at the types of disease which may upset these normal mechanisms.

Balance is maintained by the harmonious interactions of three systems; the vestibular or labyrinthine, the ocular, and the proprioceptive. It is not necessary that all three systems be functioning at any one time, but it is absolutely essential that two of the three to be functioning; otherwise it is impossible for a person to maintain his balance. In most people, it is rare for more than one system to be affected at a time, but occasionally more than one is injured and the results are somewhat dramatic.

In those who have suffered the loss of labyrinthine function as the result of congenital or toxic conditions; or as a result of, for example, streptomycin therapy, walking at night, when visual orientation is lost, is impossible. The tabetic patient, whose proprioceptive system is imperfect, has difficulty walking at night, and, if he has sufficient optic atrophy, he may well have trouble in the day time. A blind man may well be helpless if his labyrinthine function is damaged. This briefly indicates the importance of the equilibratory triad and the relationship of equilibrium to the problems of dizziness and vertigo.

The mechanism of action of these systems is of considerable interest. The ocular system provides orientation by visually aligning the subject with his body parallel to verticals and at right angles to horizontals. Thus a tree, or the horizon, may become helpful means of visual orientation.

The proprioceptive system supplies the subject with information concerning the distribution of his extremities in space. Thus he knows that his arm is

above his head and bent at 90 degrees whether he is sitting in a chair or hanging by one foot. This orientation is only relative to other parts of the body.

The labyrinthine orientation is of two sorts. There is a static organ, the utricle which appreciates changes in position of the head. It will be stimulated by slow tilts and other positioning of the head. The second type of activity of the labyrinth is produced by acceleration and is produced by stimulation of the semicircular canals. The movement of fluid through the semicircular canal stimulates the end-organ and thus produces the sensation of motion of the labyrinth in space. When sudden changes are made in the direction of this fluid flow; or when abnormal stimulation takes place, nystagmus, objective vertigo, nausea, and vomiting result. The anatomical contiguity of the endolymphatic system which consists of the semicircular canals, utricle, saccula, and cochlea makes it mandatory to carefully test the hearing in these cases, as cochlear dysfunction may result from lesions of other parts of the labyrinth.

It is essential that we establish the vocabulary for this subject, so we will define a few terms which will be used in this discussion.

Subjective Vertigo is that feeling of unsteadiness in which the patient feels that he himself is unsteady and that the room or surroundings are all right.

Objective Vertigo is that sensation evoked by a person who feels that his balance is perfect but that the surroundings are moving.

Nystagmus are those oscillations of the eyes which are involuntary and which are described in the following terms:

1. *Degree*—first degree when the eyes show nystagmus only on deviation of the eyeball in the direction of the nystagmus.
Second degree is that nystagmus seen both on deviation in the direction of the nystagmus and also when the eye is directed front.
Third degree is that nystagmus seen when the eyes are directed in the direction of the slow component, and also in to the other two positions.
2. *Direction*—described as toward the quick component of the oscillation. It would be further described as horizontal, vertical, diagonal.
3. *Type*—This refers to the movement of the eyeball and it is either horizontal or rotary.
4. *Speed*—either rapid or slow.
5. *Amplitude*—coarse or fine swing of the eyeball.

* From the Oto-laryngological Service, Thayer Hospital.

6. *Regularity*—regular or irregular in rhythm.
7. *Association*—if both eyes move together in the same direction, then the movements are associated. If they move independently, they are dissociated.
8. *Positional*—This is a form of nystagmus in which the position of the head affects the nystagmus. In many instances it shows up only with the head in certain positions.

There are four general situations in which dizziness and vertigo usually occur in diseases. These may be divided as follows:

1. Ocular disease.
2. Peripheral labyrinthine disturbances.
3. Central nervous system lesions.
4. Systemic diseases.

Ocular Disease

The role of the eye in balance is fundamental. It is one part of the equilibratory triad discussed previously. The vertigo produced by disease of this system is usually subjective and may be produced by:

1. Muscle imbalance—diplopia.
2. Refractive errors—astigmatism.
3. Glaucoma.

The nystagmus is typically rotary, in almost any direction, slow, coarse, irregular and dissociated. It is not positional.

Peripheral Labyrinthine Disease

The dizziness and vertigo produced by disease of the peripheral labyrinthine end organ is characteristic in type. It produces objective vertigo and the episodes are violent, of short duration and are frequently associated with nausea and vomiting, as well as tinnitus and deafness.

The nystagmus is either horizontal or rotary, with a definite direction to right or left, usually rapid, of fair amplitude and completely regular. It is always associated and rarely may be positional.

The usual causes are:

1. Otitis media.
2. Labyrinthitis—purulent or serous.
3. Meniere's disease or Labyrinthine Hydrops.
4. Traumatic labyrinthitis.

Central Nervous System Lesions

With this group there is always the fear that a mild dizziness may be the harbinger of some serious underlying disease, which could be picked up early by careful study, that makes us so careful in our evaluation of these cases. The dizziness and vertigo in this group is milder, of long duration and may or may not be accompanied by nausea and vomiting. If nystagmus is present it is not as a rule associated nor is it in the

usual planes of labyrinthine function. It may be vertical, diagonal, or may be present in almost any bizarre pattern. Sometimes testing of the labyrinthine function may indicate the location of such lesions. The diseases responsible for this sort of lesion comprise a rather long list. They may be briefly summarized as follows:

1. Irritation of pathways.
 - a. Tumor.
 - b. Pressure.
 - c. Infection.
2. Obstruction to pathways.
 - a. Tumor.
 - b. Demyelinating diseases.

Systemic Diseases

It is this group that produces the confusing pictures which are sometimes so suggestive of the more ominous forms of disease. The dizziness is generally mild, of rather long duration with gradual onset and gradual remission. It is sometimes associated with tinnitus but rarely with nausea and vomiting. It is rarely associated with nystagmus. It usually disappears with alleviation of the systemic disease. The groups of diseases which ordinarily produce these symptoms are:

1. Upper respiratory infection.
2. Hypertension.
3. Constipation with indicanuria.
4. Gastric upsets.

There are certain tests which are essential to properly evaluate these problems. The labyrinth is probably the first organ to be studied. There are three methods by which it may be stimulated to determine its status. The patient may be turned (a formidable procedure in a sick patient) in a Baranay chair and the reactions noted. Either hot or cold water may be put into the ear and thus caloric stimulation of the ear produced. The mastoid region may be exposed to galvanic current with resulting stimulation of the labyrinth. An audiogram should always be performed to produce a clear picture of the condition of the cochlear segment of the labyrinth. A lumbar puncture should be done to determine the pressure of the spinal fluid and its manometrics should be investigated. The ophthalmologist should investigate the eye condition carefully and laboratory testing of the hemoglobin and urinary examination for indican should be carried out. If these produce no satisfactory answer, neurological examination, sometimes including electro-encephalograms and air ventriculography should be done.

SUMMARY

The normal mechanisms of equilibration are briefly

discussed with the rational of their modes of action. The importance of careful study of patients complaining of dizziness and vertigo is emphasized, with special regard to the significance of their physical find-

ings in separating those with simple infectious causes from those with potentially serious disease. Persistent vertigo is a symptom which should be carefully investigated without fail.

AUTOCHTHONOUS CEREBRAL THROMBOSIS

CLARENCE E. DORE, M. D., and IRVING I. GOODOF, M. D.*

The occurrence of vascular thrombosis in children in the absence of infection or trauma in the involved area is a relatively rare condition. Such cases have been described without satisfactory explanation of their etiology. The terminology has been varied, employing the terms spontaneous, idiopathic, and autochthonous. Since the total number of such reports in the literature is small, we add the following instance, recently studied at the Thayer hospital.

CASE REPORT

The patient was a 19-day-old male infant. The mother had been gravida v. Pregnancy had been normal, and the delivery was normal and spontaneous. The baby fed well in the hospital, and had regained its birth weight by the time of discharge. At home, feedings were not taken well and the child lost weight. Four days prior to admission, the baby developed a cold, cried, vomited, and refused to eat or sleep. When first seen, the patient was dehydrated, emaciated, and having 6-8 loose green stools daily. The temperature rectally was 103°F. Physical examination showed cyanosis, bulging of the anterior fontanelle, bilateral purulent otitis media, acute pharyngitis, and slight nuchal rigidity. The baby was irritable, and was admitted to the hospital with a tentative diagnosis of meningitis.

On admission the red blood count was 6.0 million, hemoglobin 16.8 grams, white blood count 14,000, and differential showed 59% neutrophils, with 26 segmented, 25 stab, and 8 metamyelocyte forms. The urine showed abundant albumin, and 30-40 white cells per high power field. Lumbar puncture yielded grossly bloody fluid, with xanthochromia and 6300 white cells per cubic mm., of which 78% were neutrophils.

Bilateral myringotomy was done, with cultures revealing hemolytic staphylococcus albus. Spinal fluid cultures were sterile.

Because of the patient's inability to swallow, the baby was fed by tube, and was given parenteral fluids, penicillin, and aureomycin. The temperature, pulse, and respirations steadily increased, with respirations reaching 90 per minute on the third day, when the

second lumbar puncture was done. This specimen also showed xanthochromic fluid. Subdural taps were done, showing similar bloody and xanthochromic fluid. The baby expired on the third hospital day.

Post-mortem examination: This baby was markedly emaciated. There were no evidences of external congenital anomalies. Examination of the thorax and abdomen showed perfectly normal organs except for the adrenal glands, each of which measured 15 x 13 x 4 mm., approximately one-fifth the expected size in a child of this age. The cortex measured no more than one mm. in thickness at any point. Examination of the head showed thrombosis of the superior sagittal sinus. The external configurations of the brain were normal. No increase in subarachnoid fluid was noted. The small superficial veins on the superior aspect of the brain were thrombosed. Removal of the brain showed the presence of firmly adherent thrombi in the sigmoid and both lateral sinuses. Section of the brain revealed thrombosis of the vein of Galen. The ventricles were dilated and lined by shaggy, necrotic, hemorrhagic material, obviously encephalomalacic brain. Examination of the middle ears showed the presence of purulent material, well localized, and with no suggestion of osteomyelitis or direct spread into the cranial cavity. Microscopic study added nothing to the gross impressions in the skull. However, the adrenals showed a peculiar picture. The cortex was thin but showed a suggestion of the usual three zones. The inner zone showed pronounced fibrosis, with degenerating cells, and numerous foci of calcification, most of them within or in close proximity to dilated capillaries.

DISCUSSION

It may be assumed that since this child showed a suppurative lesion of both ears, the thrombotic changes within the skull were secondary to the infection. Even though no direct pathway for extension of the infection could be demonstrated, such extension may yet have occurred. However, the extent of the thrombotic process is far beyond that usually seen in otitic infections, and corresponds to the distribution described by others without recognizable ante-

*From the Thayer Hospital, Waterville, Maine.

cedent infection. The amount of cerebral damage is readily explainable on the basis of ischemia.

The changes in the adrenal glands are of interest. A correlation has been noted in animals between hypofunction of the adrenals and lowered resistance to infection, and it is suggested that this factor may have played a part in this case. However, the changes in the adrenal may represent an exaggeration of a normal phenomenon, namely the neonatal involution of the androgenic zone. If this is actually the case, it is

an extreme example of the degenerative process, since the total size of the gland was reduced by so great a degree.

SUMMARY

The occurrence of extensive intracranial thrombosis in an infant is recorded. The possible role of infection and of subsequent emaciation is discussed. The part played by excessively small adrenal glands is considered.

THE STAFF AUDIT AND THE CONSULTATION RATIO*

FREDERICK T. HILL, M. D., Medical Director, Thayer Hospital, Waterville, Maine

MacEachern, in a recent number of "Trustee," stated that the hospital trustee should be vitally concerned with the use of the Staff Audit in his institution. He considers this far more important in the hospital than the financial audit, as "Financial deficits eventually can be met, but medical deficiencies may cost lives and loss of health which can never be retrieved."

The purpose of this paper is to review our experiences with the Staff Audit at the Thayer Hospital, during the past twelve years; to attempt to evaluate the advantages and disadvantages of our mode of procedure; and, finally, to discuss an additional yardstick for measuring efficiency which has evolved from the use of the audit, namely, the Consultation Ratio.

The Staff Audit is defined as professional service accounting. Its objective is the insuring of the best standards of medical service in the hospital. This should, in my opinion, command the interest of Trustees, Administrators, and Staff Physicians.

The Professional Staff Audit was developed originally by Doctor Thomas R. Ponton and reported to the American College of Surgeons in 1928. His basic idea was "making a comparison of the results actually attained in the treatment of a patient with those results which might reasonably be expected from the prognosis, the comparison being made from the recorded data;" i.e., the medical record. Ponton frankly admitted that such an audit could never be as accurate as the usual business audit, as it was based upon the human equation; and that estimates and authoritative opinions often would, of necessity, be substituted for the accurate facts of business accounting. But when honestly and systematically carried out, experience has indicated that a quite accurate picture of the standard of professional service in the hospital may be obtained.

As originally proposed by Ponton the audit was to be used largely for the purpose of grading the staff for promotion, or for seniority, and to determine professional competency and the privileges to be allowed staff members. As such this would seem, at first hand, more applicable to the large teaching hospital with medical school affiliations. The average small voluntary hospital is less concerned with matters of staff promotions and less plagued with staff rivalries as to seniority. But it is interested in the standard of professional service rendered within its walls and therefore must be concerned with the professional competency of its staff. The hospital of today must assume the responsibility for the safety and welfare of its patients. Therefore it must provide adequate medical service and maintain the highest possible professional standards. All physicians are not equally qualified in all fields of practice. Departmentalization of services has been a natural sequence of the development of specialties in Medicine, and has been a big factor in improving standards of care. Even in the hospital which makes no attempt to departmentalize there is, or should be, a utilization of professional skills according to the indications and demands of the individual case. Training, experience, and natural ability should determine the field of competency, and the professional privileges accorded staff physicians should depend upon their competency. This safeguards not only the patient and the hospital, but the physician as well. A very wise old doctor once said that a physician's best work is judged by his poorest.

At the Thayer Hospital we have utilized the Staff Audit to determine competency and to appraise results. We are interested in ascertaining both what we may be doing satisfactorily, and what may fail to meet the best standards, and how improvement may be brought about. This may indicate the need for additional equipment, improved facilities or added professional skills. We have not been interested in setting up individual batting averages for the mem-

* Presented at the annual meeting of the Maine Hospital Association, June 28, 1950, and before the American College of Surgeons in Boston, Massachusetts, October 25, 1950.

bers of the staff but we do not seek to limit privileges to those proven competent in their several fields. We try to make use of constructive criticism, employed honestly, frankly, and without personal bias. To this end we have modified the audit procedure to fit our own particular situation. As such this differs somewhat, for example, from the procedure as carried out at the Women's Hospital in New York. There the audit is done by an independent professional statistician, and provides more accurate statistics and in far greater volume.

As carried out at the Thayer Hospital, each week the completed records of the patients discharged during that period are carefully reviewed by the Record Committee and the Medical Director. The Record Committee is a continuing committee, appointed by the Director and consisting of five physicians experienced and qualified in this work. Needless to say, the pathologist is a most important member of the Committee.

A prepared form is used, providing columns for the case number, the type, risk, result, the record as a whole, consultations, and errors. In addition there is a column for the physician's initials and one for notes, in which a simple identifying diagnosis and any pertinent data such as post-mortem, or reasons for criticisms may be placed. A check mark is made after each record which may have been criticized, and for each death, and when the report is typed by the record department, these so marked are done in red ink, for easy identification later.

When any criticism or omission is found a confidential note is sent to the physician responsible informing him why the record is unsatisfactory. A master-sheet carrying this information goes to the record-librarian, so she may be sure his attention is directed to the record.

The case records, first, are classified as to type, risk on admission, and result on discharge. The type is determined by the department; as Medical, Surgical, Oto-laryngological, etc., and whether Elective, Emergency, or Palliative. The risk may have been Good, Fair, or Poor. Study of the history generally indicates the proper classification without difficulty. The result is classified as Recovered, Improved, Unchanged, or Dead. Deaths are further classified as Inevitable, Justifiable, or Not Justifiable. Any discrepancy between risk and result calls for careful scrutiny and possible criticism.

The record is criticized as a whole for completeness, organization, clarity, etc. Does it give a comprehensive picture of the patient's illness and course in the hospital? Is the history complete, the physical examination adequate? Were all indicated diagnostic studies carried out? Are the operative and progress notes satisfactory? If the record is satisfactory an

"OK" is put in the proper column. If not, the reason for criticism is written down.

The number of consultations is noted. Considerable emphasis is placed upon the omission of any indicated consultation which might have benefited the patient. This constitutes grounds for criticism and is marked as "Indicated—Not Held." Should study of the record indicate any error of Diagnosis, Judgment, Treatment, or Technique, this is noted in the space provided.

While the auditing is done routinely by the record committee and the Medical Director, any staff member is welcome to sit in and to participate. Should there be any questions involving a technicality or a particular service, it is referred to the staff physician best qualified in that field. If there is any question as to the validity of a criticism or any doubt about the reason for it, the physician in question may take this up with the Medical Director, where it is discussed in a frank and friendly manner. The main idea is to make the criticism constructive. The audit is used primarily to improve the professional service. All criticisms are confidential. Should there be any indication for limitation of privileges, this is handled by the Medical Director, acting in behalf of the Trustees.

Rarely, indeed, has any such action been necessary. The men tend to confine their work within the fields in which they are qualified, recognizing that each and every physician has his own limitations. This, in itself, is the mark of a good physician, the importance of which has been emphasized by our use of the audit. And, what is most encouraging, we have been conditioned to admitting our own errors when they occur. For errors are bound to happen at times in the practice of Medicine, even under the best of auspices. The important thing is to recognize and acknowledge the error; for an error so recognized and acknowledged, is a lesson learned which should prove invaluable in the Future.

Most hospitals review their deaths and perhaps their most serious cases. Valuable as this is, it seems to us that this is not enough. Sometimes there may be quite glaring errors in the cases which recover, for nature is the Great Healer. If recovery alone is the sole objective, less progress will be made in improving the quality of medical care.

From time to time analyses of the Audit are presented to the Staff as may be indicated. In all such presentations personal references are carefully avoided. At the end of the year a complete analysis of the Audit is incorporated in the Annual Report of the Medical Director, a copy of which goes to each member of the Staff and to each of the Trustees.

There are certain disadvantages in our method of conducting the audit. It is time-consuming and is

dependent upon volunteer service. It is far less accurate statistically than the more formal procedure. It does not provide as much material for research purposes, or, for example the comparison of different techniques or therapeutic procedures.

On the other hand it is more personal and lends itself to the individual appraisal of each case. It is democratic as the staff does its own auditing through its committee, with any member welcome to sit in. Its emphasis is upon constructive criticism and thereby has proven to be truly educational. It has been accepted and whole-heartedly supported by the staff. And it furnishes the Trustees with information as to the standards of professional service in a manner easily understood.

From the material incorporated in the audit certain analyses are made which are of great value in determining the standard of service in the hospital. These include the analysis of deaths with causes, and whether inevitable, justifiable or not justifiable, the ratio of post-mortem examinations, the number of operative obstetrical cases with the reasons for the same, the percentage of unsatisfactory records and of errors.

A comparatively new development from our use of the audit has been the Consultation Ratio which seems to provide additional valuable information.

A consultation may be defined as a conference of two or more physicians for the purpose of confirming, amplifying or changing the diagnosis, prognosis, or treatment of a case. One of the outstanding reasons for the existence of the hospital is the facilitating of consultations. Otherwise the institution may be little more than a boarding-house for the sick, in the business of selling board and room with nursing service added. Consultations imply the pooling of all the professional skills needed to speed recovery. And the welfare of the patient should always be the first consideration of the hospital.

Therefore a hospital staff should be made "Consultation-minded." With rare exceptions there should be little necessity for the lone physician to "play

God." There is great value to all in sharing responsibility.

In an endeavor to promote the use of consultations whenever they might be of benefit to the patient and to have some record of our success in so doing, we have added the Consultation Ratio to our analysis.

From the audit we obtain the total number of consultations held. To this figure is added the number of consultations which were deemed as indicated but which were omitted. The basis used in each case is whether the patient might have been benefited from the use of consultations. The proportion of those held to this sum constitutes what we designate as the "Consultation Ratio." We feel that this information is of value as an added index of the Standards of medical service.

I might add that we have a ceiling on physicians' fees for consultations which is low enough to avoid the excuse of causing the patient expense. Also any physician may have the benefit of what we call a Staff Consultation on any patient without any fees or expense, whenever he wishes it. This is in the nature of a staff or group conference on the case. It is called automatically on all cases on the Danger List.

Summary: Twelve years' experience with the use of the Staff Audit at the Thayer Hospital has been reviewed. An attempt has been made to evaluate its use, as carried out in our institution. While our procedure is not as accurate statistically, nor does it furnish as much material for research purposes as does the more formal type, it has proven itself adaptable for our purposes. It lends itself to individual appraisal of each case. Its emphasis is upon constructive criticism. The Consultation Ratio furnishes valuable information and has stimulated the greater employment of consultations. The Staff Audit, if consistently and honestly carried out results in greatly improved standards of professional service.

REFERENCES

- MacEachern, M. T.: "The Board's Control of Hospital Medical Care." *Trustee*, 3-6, June, 1950.
Ponton, T. R.: "The Medical Staff in the Hospital." *Physicians Record Co.*, 1939.

Nursing needs have increased in spite of lower death rates, longer life expectancies, and a generally healthier population. The number of people in the United States has increased by an estimated 16,000,000 since the 1940 census. More people are now living to an older age than ever before, and consequently the diseases and disabilities of older people have multiplied. A high standard of living has prevailed since the early years of the war, medical prepayment plans

have spread, and public health services have been expanded in many areas. In 1940, 10,087,000 patients were admitted to hospitals in the United States, but by 1948 the number of hospital admissions had risen to 16,422,000.—*Pub. Health Reports*, August 5, 1949, Chesley Bush, M. D., Esta H. McNett, R. N., B. S., Lucile Petry, M. A., and Martha B. Naylor, R. N., B. S.

THE SPEECH AND LIP-READING CLINIC AT THAYER HOSPITAL, WATERVILLE, MAINE

ELIZABETH O. KOONS, Director

The Speech and Lip-Reading Clinic at Thayer Hospital, Waterville, Maine, has two main purposes. It attempts to provide the extra help that is needed for deaf children to attend their local schools and take their places in a hearing society and it tries to educate the parents to help the children at home.

There are, at present, twelve children and their parents attending the weekly sessions. They are divided into two groups: the pre-school group, ages 3½-5, and the grade-school group, ages 6-14.

This latter group consists of children who are attending their local schools and who come to the clinic for speech-correction, drill in speech and lip-reading, and tutoring in school subjects that prove difficult for them. Usually these are the subjects that involve much language such as history, geography and reading. Because deaf children's voices tend to be monotonous, they are taught, also, the rhythm of speech, pitch, and intensity.

This paper will deal primarily with the work in the pre-school group. Here the foundations of speech and language are laid. All the children who attend the clinic have had this work with modifications according to their age, background and residual hearing.

A deaf child is just like a hearing child except for two things. The hearing child automatically learns two indispensable tools — language and speech. The deaf child, left to himself, remains a babbler. To live happily among hearing people, however, he must have these tools. He must be able to express his thoughts and desires, to understand the thoughts of those about him and to develop his ability to read and write. The earlier he starts his training, the greater will be his chance for success.

Language and speech start with lip-reading. The teacher through her continual use of natural language must make the child aware of it and develop within him the need to express himself in both the oral and written forms. When the child becomes aware that what he sees on the teachers lips is connected with her ideas, language has its beginning. When he tries to imitate what he sees on the teacher's lips, speech has its beginning.

The first step in lip-reading is matching object to object. (Formal lip-reading and all speech are taught with the child's hands on the teacher's face. This directs the child's attention to the place where speech originates and it enables him to feel vibrations and breath.) Several small toys are placed on the table

and the teacher, with the child's hands on her face, tells him what each thing is. The child then has to match each object on the table with a similar toy. The next step is matching objects to pictures. When the child can do this, one thing is put on the table and there follows a period of introducing this to the child without requiring any direct action on his part, e.g. "This is a ball." "The ball is red." "See how the ball bounces." The word "ball" is stressed slightly and the child eventually connects the movement of the lips for "ball" with the object. Then the child is asked, "Where is the ball?" By that time, he should be able to reach out and pick it up. If, however, he hesitates, the teacher takes the child's hand and puts it on the ball. Soon after the child is taught to recognize the written form of the word.

The same procedure is taken with all other words introduced. New words are not given until the child definitely knows the older ones.

Pictures soon replace the objects and the question becomes, "Where is the picture of the ball?" Thus the word vocabulary is built up.

Along with this is the lip-reading and silent-reading of simple commands such as: "Run," "Jump," "Dance," "Bow," etc. One is presented at a time and the child is shown how to do it. He learns to read these commands on the lips and, at the same time, he learns the written form. Phrases and sentences follow as soon as he is ready for them.

As in lip-reading, a great deal of speech must be "put into" a child before he can be expected to give anything back. He will probably try to imitate the words given him in lip-reading as he has had his hands on the teacher's face and has felt the vibrations and breath.

Speech work is started with the colors, red and blue, and the idea that these colors represent voice and breath sounds respectively. When the child can recognize the difference between voice and breath, nasal voice is added. All this is done with the child's hands on the teacher's face.

The early work in speech includes the teaching of the key vowels, long "e," long "o," and long "a." These vowels represent the extremes to which the tongue must go in saying vowels. If a child can say these vowels, he can be expected to say all other vowels and diphthongs.

After a while the child should attempt to give back whole words through imitation, using touch and any residual hearing he might have. Individual sounds

Continued on page 66

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Androscoggin

Dr. S. Charles Kasdon, a practicing obstetrician in Boston and a member of the research staff at the Cancer Research Unit of the New England Medical Center Hospital, was guest speaker at a meeting of the Androscoggin County Medical Society, December 21, 1950. Dr. Kasdon gave an extremely valuable and interesting resumé of progress in obstetrical practice.

Dr. John A. James was elected to membership at this meeting.

The annual meeting of the Androscoggin County Medical Society was held at the Central Maine General Hospital, Lewiston, January 18, 1951. There were 22 members present.

Dr. George E. D. Desaulniers of Lewiston was elected to membership.

The following Officers were elected for 1951:

President, Merrill S. F. Greene, M. D., Lewiston.

Vice President, Alcide F. DuMais, M. D., Lewiston.

Secretary-Treasurer, Dean Fisher, M. D., Lewiston.

Councilor, Bertrand A. Beliveau, M. D., Lewiston.

Delegates to the Maine Medical Association (two years): Romeo A. Beliveau, M. D., Lewiston, and Waldo A. Clapp, M. D., Lewiston. Alternates (two years): Eustache N. Giguere, M. D., Lewiston, and Robert A. Frost, M. D., Auburn.

Advisor to the Woman's Auxiliary, Ralph A. Goodwin, M. D., Auburn.

Dr. Peter Knapp, Instructor in Psychiatry at the Boston University School of Medicine, spoke on Methods of Management of Psychosomatic Medical Problems.

DEAN FISHER, M. D.,
Secretary.

Cumberland

The annual meeting of the Cumberland County Medical Society was held at the Maine General Hospital, December 28, 1950. It was preceded by an excellent clinic prepared by the Resident and Attending Staff of the Hospital. Following the dinner the meeting was called to order by President Smith, followed by the reading of the minutes of the last meeting. It was reported by the secretary that the Woman's Auxiliary wish to have a joint meeting in January.

It was voted that Dr. Edwin W. Gehring be appointed to Senior Membership in the Society.

The report of the Public Relations Committee, relative to the proposal made from the Telephone Answering Service Bureau, Inc., offering the free service of one of their telephone lines if the Cumberland County Medical Society would prepare a list of physicians ready to make emergency calls, was discussed. The Public Relations Committee was instructed to act with a similar committee from the Portland Medical Club to work out a definite plan in the handling of emergency calls.

The annual report of the Secretary-Treasurer was read and approved.

The following Officers were elected for the coming year:

President, Theodore M. Stevens, M. D., Portland.

Vice President, Paul C. Marston, M. D., Kezar Falls.

Secretary-Treasurer, Ralf Martin, M. D., Portland.

Delegates to the Maine Medical Association (two years): Charles R. Geer, M. D., Portland; G. E. C. Logan, M. D., Portland; John M. Bischoffberger, Naples; and Eugene P. McManamy, Portland. Delegates (one year): Eugene E. O'Donnell, M. D., Portland; Richard S. Hawkes, M. D., Portland; Joseph E. Porter, M. D., Portland; and George L. Maltby, M. D., Portland. Alternates (two years): Daniel F. Hanley, M. D., Brunswick; Henry A. Hudson, M. D., Bridgton; Ralph Heifetz, M. D., Portland; and Sydney R. Branson, M. D., South Windham. Alternates (one year): Francis W. Hanlon, M. D., Portland; Edward G. Asherman, M. D., Portland; Richard J. Goduti, M. D., Portland; and Barron F. McIntire, Jr., M. D., Yarmouth.

Public Relations Committee: George I. Geer, M. D., Portland; Philip P. Thompson, Jr., M. D., Portland; and Philip H. McCrum, M. D., Portland.

You Can Assure...adequate water, bulk, dispersion
with METAMUCIL...

Smoothage Therapy in Constipation

ADEQUATE WATER...

Metamucil powder is taken with a full glass of cool liquid and may be followed by another glass of fluid if indicated. This assures the desired water volume conducive to physiologic peristalsis.

ADEQUATE BULK...

Mixed with water, Metamucil produces a large quantity of a bland, plastic, water-retaining bulk.

ADEQUATE DISPERSION...

This bland mass mixes intimately with the intestinal contents and is extended evenly throughout the digestive tract.



Metamucil does not interfere with the digestion or the absorption of oil-soluble vitamins; is nonirritating; does not interfere with water balance; does not cause straining or impaction.

METAMUCIL® is the highly refined mucilloid of *Plantago ovata* (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. G. D. Searle & Co., Chicago 80, Illinois.

SEARLE

RESEARCH IN THE SERVICE OF MEDICINE



Dr. William Holt of Portland showed a new color and sound film on the Detection of Early Gastric Malignancy.

RALF MARTIN, M. D.,
Secretary.

Franklin

The annual meeting of the Franklin County Medical Society was held January 15, 1951.

The following Officers were elected for the coming year:

President, Philip B. Chase, M. D., Farmington.

Vice President, Wallace H. Duffy, M. D., Farmington.

Secretary-Treasurer, Paul E. Floyd, M. D., Farmington.

Delegate to the Maine Medical Association: George L. Pratt, M. D., Farmington. Alternate: Currier C. Weymouth, M. D., Farmington.

Board of Censors: Currier C. Weymouth, M. D. (3 years), Harry Brinkman, M. D. (2 years), Herbert M. Zikel, M. D. (1 year).

PAUL E. FLOYD, M. D.,
Secretary.

Hancock

The annual meeting of the Hancock County Medical Association was held December 13, 1950.

The following Officers were elected for 1951:

President, W. Edward Thegan, M. D., Bucksport.

Vice President, Dwight Cameron, M. D., Northeast Harbor.

Secretary-Treasurer, Joseph H. Hanson, M. D., Bar Harbor.

Delegate to the Maine Medical Association: James H. Crowe, M. D., Bar Harbor. Alternate: Philip L. Gray, M. D., Blue Hill.

Board of Censors: Lyman C. Burgess, M. D. (1 year), Raymond E. Weymouth, M. D. (2 years), Herbert T. Wilbur, M. D. (3 years).

Robert O. Kellogg, M. D., of Bangor, spoke on the subject, Pharmacology, Physiology and Clinical Application of ACTH.

The first meeting of the Hancock County Medical Society in 1951 was held January 10th at the Hancock House, Ellsworth, Maine. The meeting was opened at 8.15 P. M. with eighteen members present.

Charles F. Branch, M. D., Pathologist at the Central Maine General Hospital, Lewiston, presented a very instructive paper on the Etiology of Gall Bladder Disease.

A brief business meeting followed the scientific program. The secretary announced the regulations concerning the Doctor Draft and the registration January 15th. There was also a discussion relative to the proposed Blue Shield plan presented by the Associated Hospital Service of Maine.

JOSEPH H. HANSON, M. D.,
Secretary.

Kennebec

The annual meeting of the Kennebec County Medical Association was held at the Augusta State Hospital, Augusta, Maine, December 14, 1950. A very fine dinner was served by the Hospital personnel. There were forty-nine members present.

The records of the previous meeting were read and approved.

It was voted to recommend to the House of Delegates of the Maine Medical Association in June, the name of C. H. Newcomb of Clinton for Senior Membership.

It was voted to approve the action of the Council of the Maine Medical Association in approving the Hospital Association drive for legislative support for funds.

Harold E. Small, M. D., Chairman of the Committee for Resolutions on the death of G. R. Campbell, M. D., of Augusta, presented the following:

Dr. George Russell Campbell, Dean of Augusta Physicians, died at his home in Augusta, Maine, on February 27, 1950.

Dr. Campbell was born in Waterville, Maine, April 20, 1867, the son of Dr. and Mrs. Henry Campbell. He was a graduate of Coburn Classical Institute and Colby College. He received his Medical Degree from Bowdoin Medical College in 1895.

Dr. Campbell was the oldest member, in years of service, of the Augusta General Hospital. He became a staff member in 1900 and served on the Honorary Staff during World War II.

He went to England for study and research in the London hospitals and returned to Augusta where he did considerable work in Bacteriology for the Augusta State Hospital. He also carried on an extensive practice in medicine and surgery in Augusta.

Dr. Campbell was a member of the Kennebec County Medical Society, the Maine Medical Association, and the American Medical Association. In non-professional activities he was a 32-degree Mason.

Dr. Campbell was a skilled practitioner who loved people and was devoted to his patients. He was always willing to coöperate with other physicians in any way he could. He had a long and useful life and his presence will be greatly missed.

We, the members of the Kennebec Medical Society wish to extend to his widow and family our sincere sympathy in their loss and ours.

Respectfully submitted,

HAROLD E. SMALL, M. D., *Chairman.*
R. L. MITCHELL, M. D.

It was voted that these resolutions be accepted, spread upon the records, and a copy sent to the survivors.

The annual reports of the Secretary-Treasurer were read and accepted.

WHY DON'T YOU GET YOUR PAY?

Over 500 physicians and 20 hospitals have increased their incomes by placing their accounts with us for adjustment, in a humane, honest and efficient manner. So can you—let us tell you how. →

Reference: Maine Medical Association Secretary

MEDICAL AUDITING COUNSEL

297 WESTERN PROMENADE, PORTLAND 4, MAINE

CLIP

AND MAIL

Without obligation
send me full details concerning your service.

Name

Street

City

The following Officers were elected for 1951:

President, Edwin W. Harlow, M. D., Waterville.
Vice President, Francis H. Sleeper, M. D., Augusta.
Secretary-Treasurer, A. H. Morrell, M. D., Augusta.
Council: M. Tieche Shelton, M. D. (1 year), Harold E. E. Small, M. D. (2 years), Charles E. Towne, M. D. (3 years).

Delegates to the Maine Medical Association: Lorrimer M. Schmidt, M. D., Togus; George J. Robertson, M. D., Waterville; Hugh J. Matthews, M. D., Gardiner; Thomas F. Fay, M. D., Augusta; John F. Reynolds, M. D., Waterville. Alternates: Robert W. Wilson, M. D., Togus; Frederic B. Champlin, M. D., Waterville; Anthony E. Lepore, M. D., Gardiner; Henry A. Brann, M. D., Augusta; James N. Shippee, M. D., Winthrop.

Francis H. Sleeper, M. D., Superintendent of the Augusta State Hospital, presented a paper on "Maine's Problem of Suicide."

A. H. MORRELL, M. D.,
Secretary.

York

The annual meeting of the York County Medical Society was held at the Henrietta Goodall Hospital, Sanford, Maine, January 10, 1951.

The following Officers were elected for the coming year:

President, Melvin Bacon, M. D., Sanford.
Vice President, Edward W. Holland, M. D., Sanford.
Secretary-Treasurer, Charles W. Kinghorn, M. D., Kittery.

Council: William F. Mahaney, M. D., Saco.

Delegates to the Maine Medical Association: Carl E. Richards, M. D., Sanford; Paul S. Hill, M. D., Saco; Charles W. Kinghorn, M. D. Alternates: James H. Macdonald, M. D., Kennebunk; Kenneth J. Cuneo, M. D., Kennebunk; J. Robert Downing, M. D., Kennebunk.

Censor: H. Danforth Ross, M. D., Sanford.

Committee on Resolutions: E. Paul Webber, M. D., Frank W. Barden, M. D., Joseph R. LaRochelle, M. D.

Publicity: William F. Mahaney, M. D., Saco.

C. W. KINGHORN, M. D.,
Secretary.

New Members

Androscoggin

John A. James, M. D.

George E. D. Desaulniers, M. D., Lewiston, Maine.

Knox

Robert H. Bearor, M. D., North Haven, Maine.

Barbara G. Luce, M. D., 43 Park St., Rockland, Maine.

Dorothy Waterman, M. D., Friendship, Maine.

Richard Waterman, M. D., Friendship, Maine.

Verla Worthing, M. D., Thomaston, Maine.

Penobscot

Frank S. Damazo, M. D., Corinna Maine.

Frederick C. Emery, M. D., 3 Third St., Bangor, Maine.

Frances L. Inglee, M. D., 4 North Fourth St., Old Town, Maine.

Carl W. Irwin, M. D., 316 State St., Bangor, Maine.

York

S. Dunton Drummond, M. D., Buxton, Maine.

Louis C. Lesieur, M. D., 6 Beach St., Saco, Maine.

Advertisement



From where I sit
by Joe Marsh

Watch Out For The "Blind Spots"

Stopped by Squint Miller's farm the other day and saw a vinegar bottle in his kitchen with an oversized cucumber inside it. The cucumber filled the whole bottle.

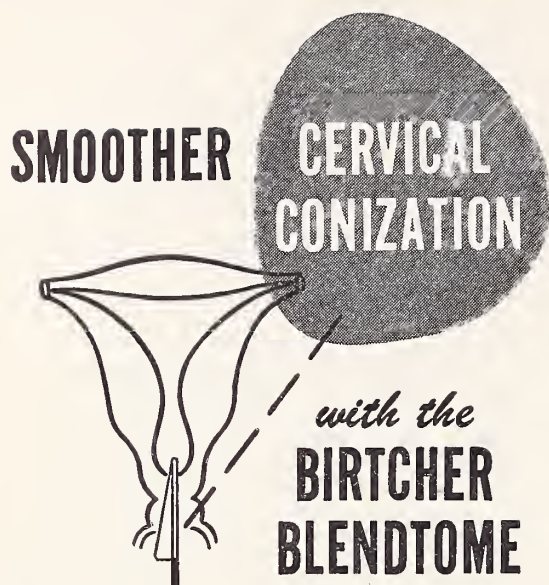
"What's a cucumber doing in there?"

I asked him. "That's my 'blind spot' reminder," says Squint. "My grandmother kept one in her kitchen to remind her to take stock of herself now and then.

"I slipped the bottle over the cucumber when it was just starting to grow on the vine," he went on. "And like certain viewpoints we acquire, not noticed, it just grew and grew—now it's there to stay."

From where I sit, we could all take a cue from Squint and watch out for our own "blind spots." Sometimes we impose our views on our neighbor without thinking of his rights as an American—his right to follow his profession where and how he chooses, or say, his right to enjoy a glass of beer. No more "blind spots" if we keep our eyes—and minds—open!

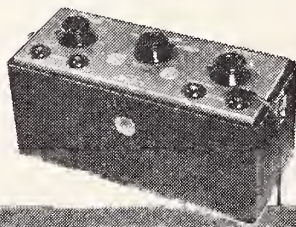
Joe Marsh



Frequent necessity of cervical repair suggests the practicality of having a BLENDTOME ELECTROSURGICAL Unit in the office or clinic. With this instrument, the doctor is enabled to do a smoother cervical conization. The BLENDTOME cuts and coagulates simultaneously with a blended current. Scar and other tissue is cut through quickly and easily; blood and lymph vessels are almost instantly sealed. The cleaner field results in reduced trauma and operative shock, smoother convalescence and more rapid healing.

The Birtcher BLENDTOME was designed for use in the doctor's office or private clinic. It provides electrosurgery for all but the strictly major cases. There are many everyday uses for the BLENDTOME—any case indicating fast and sure cutting with simultaneous sealing off of blood and lymph vessels.

Consider how much more you would be able to do with the ease, timesaving and effectiveness of a Birtcher BLENDTOME in your own office. Write for literature.



THE BIRTCHER CORPORATION

To: The BIRTCHER Corp., Dept. MA 2-51
5087 Huntington Dr., Los Angeles 32, Calif.

Please send me, by return mail, free brochure
on the portable Blendtome Electrosurgical Unit.

Dr. _____

Street _____

City _____ State _____

NEWS AND NOTES

Fourth Annual Postgraduate Course in Diseases of the Chest

The FOURTH ANNUAL POSTGRADUATE COURSE IN DISEASES OF THE CHEST sponsored by the American College of Chest Physicians, Pennsylvania Chapter and the Laennec Society of Philadelphia, will be presented at the Hotel Warwick, Philadelphia, Pennsylvania March 26-30, 1951.

This course will emphasize the recent developments in all aspects of the diagnosis and treatment of chest disease. The course is open to all physicians; however, the number of registrants will be limited. The tuition fee is \$50.00 and applications will be accepted in the order in which they are received. Applications should be sent to the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Philadelphia Postgraduate Course Committee

Chevalier L. Jackson, M. D., Chairman

Leon H. Collins, M. D., Vice Chairman

Katherine R. Boucot, M. D.

J. Antrim Crellin, M. D.

Louis Cohen, M. D.

Burgess Gordon, M. D.

Robert V. Cohen, M. D.

William A. Lell, M. D.

David A. Cooper, M. D.

Esmond R. Long, M. D.

Martin J. Sokoloff, M. D.

J. Winthrop Peabody, M. D., ex-officio

Edward Lebovitz, M. D., ex-officio

Gastro-Intestinal Bleeding Associated with Hiatus Hernia Continued from page 43

7. Portis, S. A.: Discussion of Paper by D. S. Beilin on Diaphragmatic Hernia of the Stomach. *Radiology*, 37:68 (July), 1941.
8. Case Records of Mass. Gen. Hosp. N. E. M. J., 230:522 (April 27), 1944.
9. Putney, F. J.: Thoracic Stomach Produced by Esophageal Hiatus Hernia and Congenital Short Esophagus. *Ann. Int. Med.*, 28:1094 (June), 1948.

The Speech and Lip-Reading Clinic at Thayer Hospital Continued from page 61

that are given incorrectly, or not given at all, must be worked on. It is better for a child to have a few sounds well learned than to have many poorly learned.

The clinic is extremely fortunate in having a group hearing-aid. It is used at all possible times in order to use profitably any hearing that may be present, to train the child to discriminate gross sounds, music and voice, and to enable him to learn the rhythm of speech.

A small child's attention span is limited. We go from one thing to another quickly and we tell stories, play games and dramatize simple situations in between formal teaching.

The parents work at home each day with the child, repeating all that has gone on at the clinic. This work of the parents is absolutely necessary. It maintains the child's awareness of speech and language, gives him a feeling of success before the teacher and, above all, enables him to learn new things more quickly.



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, March, 1951

No. 3

DIFFERENTIAL DIAGNOSIS OF GASTRIC LESIONS FROM CELLS OBTAINED BY STOMACH ASPIRATION*

JOSEPH PORTER, M. D.,† JACK SPENCER, M. D.,‡ ELTON R. BLAISDELL, M. D.,** JOHN F. APPEL, M. D.,**
and STANLEY E. HERRICK, JR., M. D.,** Maine General Hospital, Portland, Maine

Since Papanicolaou and Traut, in 1943, demonstrated the relative reliability of the cytologic diagnosis of uterine cancer, a revived and widening interest has developed in the field of exfoliative cytology. Numerous reports have dealt with the diagnosis, by this means, of neoplasms of the female genital tract, as well as of the pulmonary and urinary tracts, the serous cavities, and the upper gastro-intestinal tract. Application of the method is being extended to include the study of such materials as ocular tumors, spinal fluids and rectal swabbings.¹

Published data have been encouraging. The value of Papanicolaou smears is established as an adjunct to other means of gynecologic diagnosis. A high accuracy is claimed in the diagnosis of lung cancer (by examination either of expectorated sputum or material aspirated through the bronchoscope), and urinary tract neoplasms. The diagnosis of gastric carcinoma by study of exfoliated cells has received somewhat less attention, though several excellent papers on this subject have recently been published.

Two outstanding features of the natural history of carcinoma of the stomach are maximal occurrence and minimal cure. This lesion is among the most

frequent of malignancies and offers at present only a (maximum) 6.5 per cent chance of survival for five years. The poor prognosis is undoubtedly a function of the fact that cancer of the stomach is usually moderately advanced before it produces any symptoms at all.² It is therefore reasonable, as has been frequently pointed out, that any possible aid to diagnosis be thoroughly evaluated. The Papanicolaou procedure has been thought to offer such aid by several groups of workers.

Block et al.³ at the University of Michigan examined the gastric juice of 278 patients who had gastro-intestinal complaints. With the diagnosis based upon clinical evidence, 86 per cent of smears from patients thought not to have cancer were negative, while 40 per cent from patients thought to have cancer were positive. When histologic evidence was considered, these figures were reduced respectively to 72 per cent and 35 per cent.

Richardson, Queen and Bishop,⁴ employing the technique of paraffin—embedding gastric washings, attempted to classify the cytohistologic preparations thus obtained under four headings: cancer, ulcer, gastritis, normal. They report a study of 78 patients in whom a diagnosis was made by operation, autopsy or clinical course. With this method they were able to identify correctly 48.1 per cent of cancers, 83.3 per cent of ulcers, 66.7 per cent of gastritides and 61.1 per cent of normal stomachs. One of their cases of

* Read at the 96th Annual Session of the Maine Medical Association, June, 1950.

** Department of Internal Medicine.

† Department of Pathology.

‡ Department of Roentgenology.

correctly diagnosed cancer is particularly interesting in that the neoplasm proved to be 1 mm. in size and situated in the margin of an ulcer.

Swarts and his co-workers⁵ found a high incidence of poor smear preparations in 67 cases of proven cancer of the stomach, the incidence being 49 per cent. Comparing this figure with 25 per cent of unsatisfactory preparations in cases in which cancer was absent, a difference was seen which is felt by the authors to be very significant. They list the factors responsible for unsatisfactory preparations as: (1) Large extensive tumors with much necrosis; (2) Obstruction of cardia or pylorus; (3) Very anaplastic carcinoma. Of 34 proven cases of cancer of the stomach in which smears were satisfactory, cytologic diagnosis was correct in 44 per cent.

Graham, Ulfelder and Green,² early in 1948 were able to reach a 62.5 per cent accuracy in identifying carcinoma, obtaining 15 positive smears from 24 patients with cancer. Somewhat later in that year, introducing a technique of aspiration which we have since in the main adopted, Ulfelder, Graham and Meigs reported correct smears in 12 of 14 patients with cancer of the stomach.⁶

We have been interested in this problem for the past 17 months, during which period 63 examinations have been performed on 57 patients. Three examinations produced unsatisfactory smears for a percentage of 4.7. No re-examinations were possible in these three patients, so 54 patients were examined satisfactorily a total of 60 times.

The specimens for examination were obtained by a technique which is simple but somewhat time-consuming. We have felt that each procedure should be handled by only one person up to the point where the smears are placed in fixative, thus eliminating delay. As Ulfelder has pointed out, if there is more than half an hour's delay in fixing the specimen, the cells are digested and no definite cellular characteristics can be identified. A new or pressure-washed Levine tube with extra perforations extending about 14 inches from the distal end, is introduced through the nose of a fasting patient well into the stomach. Gastric content is aspirated for the first specimen. 100 c.c. of normal saline are introduced into the stomach and allowed to remain 5 minutes while the patient's position in bed is frequently changed. The stomach is emptied again for the second specimen. Both specimens are immediately centrifuged for 15 minutes at about 2000 r.p.m. The sediment is then smeared on 6 slides prepared with egg albumin, following which the smears are fixed in a mixture of half 95 per cent ethyl alcohol and half ethyl ether. The Papanicolaou stain is then employed, and all slides are completely searched for abnormal cells.

All 63 specimens were collected by two of us, insuring a uniformity of technique. A minimum of

time was permitted to elapse between the collecting and fixing of the specimen. We feel that these factors account in great measure for the large percentage of satisfactory smears that was obtained. When obstruction of the stomach was present, a period of preliminary drainage preceded the actual aspirations. All of the smears were examined by one of us (J. P.), or by Doctor Franklin F. Ferguson. In addition several smears were examined by Dr. George Papanicolaou and his associates.

Although it is not within the province of this paper to discuss gastric cytology in detail, a brief review of the essential features may be desirable. Most of the cells seen in gastric secretion do not desquamate from the gastric mucosa, but rather are shed from the upper alimentary and respiratory tracts and subsequently swallowed. The most numerous cells are large, flat squamous epithelial cells. (Figure I) Col-

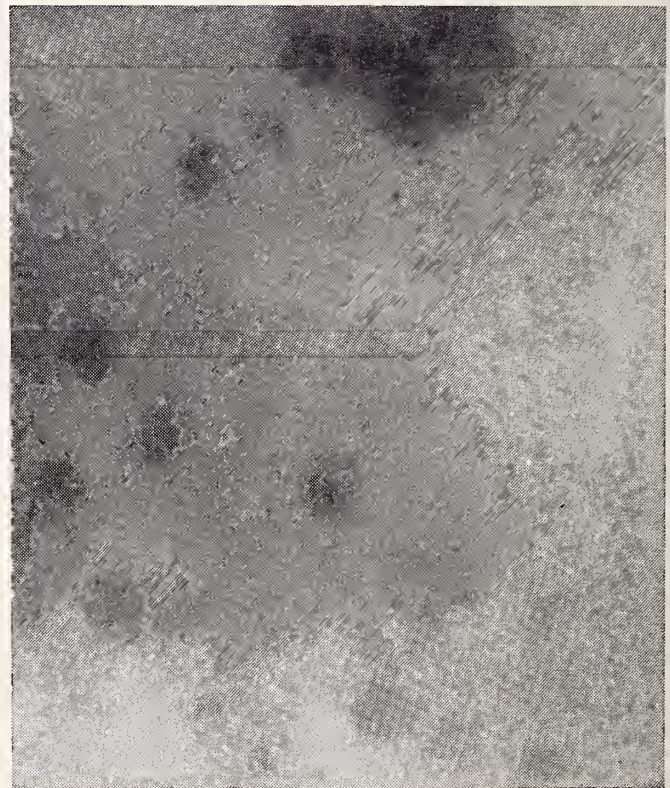


FIGURE I

Large squamous epithelial cells are the most numerous normal cells in a gastric smear. A clump of tumor cells with hyperchromatic nuclei is seen in the upper portion of the photograph.

umnar cells may come from the gastric mucosa or from the respiratory tract. Distinction is often possible on the basis of size and shape of cytoplasm and nucleus, and sometimes by the presence of cilia, indicating a respiratory origin. The typical smear also contains leukocytes and histiocytes. Actually cells originating from the gastric mucosa are relatively few in number. In general malignant cells show rather indistinct cytoplasm without good cellu-



FIGURE II

A group of malignant cells showing sharp nuclear borders produced by abnormal chromatin arrangement.



FIGURE III

These malignant cells possess somewhat indistinct cytoplasm. Nuclei are glazed and dark in appearance.

lar borders. Nuclei are glazed and dark in appearance; and the chromatin arrangement is abnormal, often being concentrated at the periphery to produce a sharp nuclear border. (Figures II and III) Nucleoli are often prominent. Nuclei may vary markedly in size and shape. Occasionally giant forms are produced.⁷ (Figure IV)

Results: Of the 54 patients examined, the diagnosis of carcinoma of the stomach was definitely established, by laparotomy or autopsy, in 11. In 4 other patients quite unequivocal roentgenologic evidence of stomach cancer, the presence of tumor cells in ascitic fluid or other evidence of peritoneal involvement (rectal shelf), and a corroborative clinical course were felt to be adequate proof of the diagnosis. Thus there were 15 cases of proven cancer of the stomach in the series. In the remaining 39 patients carcinoma was excluded. The exclusion was made in 22 patients by findings at laparotomy or autopsy, and in 17 patients on clinical and roentgenologic grounds.

Of the 15 patients with proven carcinoma, smears were positive in 8 or 53.3 per cent. One smear (6.7 per cent) was doubtful, while 6 smears (40 per cent) were falsely negative.

Of the 39 patients without cancer of the stomach 34 or 87.2 per cent showed negative smears. The

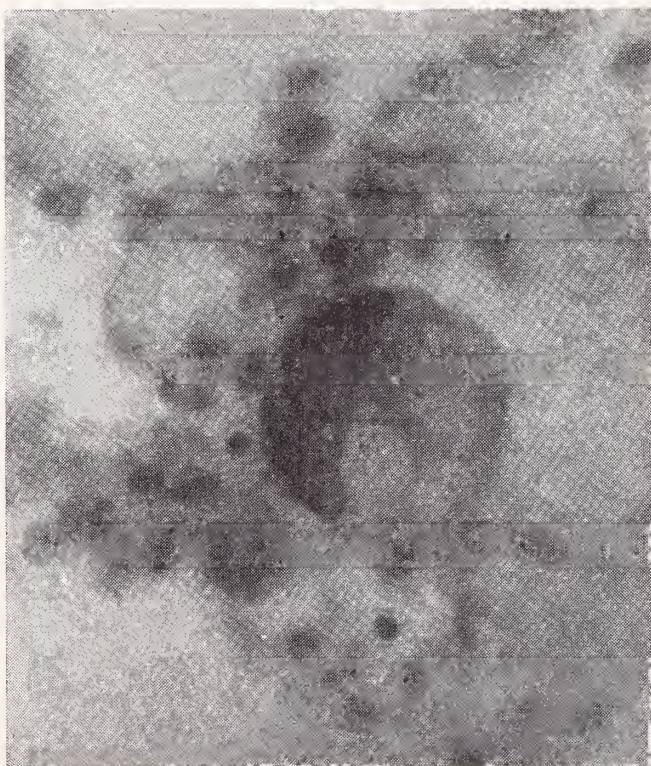


FIGURE IV

A giant malignant cell (Case 2).

smears of 4 (10.3 per cent) were doubtful, while 1 (2.5 per cent) showed falsely positive smears.

Two patients from the "non-cancer" group are of considerable interest. From one a doubtful smear, and from the other a positive smear was obtained, each being considered an error in cytologic diagnosis. The first (doubtful) patient died 6 months after the gastric aspiration was performed. Autopsy revealed a normal stomach, but the presence of a small bronchogenic carcinoma previously unsuspected from clinical or chest X-ray findings. It is postulated that the atypical gastric cells labeled "doubtful," actually represented swallowed bronchogenic cancer cells. The second (positive) patient, age 44, had roentgenologic evidence of a suspiciously large ulcer on the lesser gastric curvature. The initial Papanicolaou smear was positive, but a repeat examination was negative. Following gastrectomy one year ago numerous sections made of the ulcer, and of apparently uninvolved portions of the stomach, were negative for cancer. Recently Dr. Papanicolaou examined these smears, placing them in Class III (suspicious) and remarking that the cells may have had a respiratory origin. The patient was carefully re-examined, the only significant finding being a density in his right nasal antral sinus by X-ray. At surgical exploration this lesion proved to be a benign cyst. Thus the origin of these cells remains unexplained, and the smear is considered a false positive (since it was so classified in this hospital).

Our findings with the Papanicolaou procedure are compared with the results of X-ray examination in Table I.

TABLE I

Diagnosis		Accuracy
		X-ray
54 patients		Papanicolaou Smear
Cancer	Positive —12 (80%)	Positive — 8 (53.3%)
15 patients	Doubtful— 3 (20%)	Doubtful— 1 (6.7%)
	Negative— 0	Negative— 6 (40%)
No Cancer	Negative—24 (61.5%)	Negative—34 (87.2%)
39 patients	Doubtful— 9 (23.1%)	Doubtful— 4 (10.3%)
	Positive — 6 (15.4%)	Positive — 1 (2.5%)

These data suggest that when cancer is present the X-ray diagnosis is approximately twice as reliable as the smear, since no false-negative X-ray examination was reported, while 40 per cent of the smears were found to be false negatives. However, the single false-positive smear indicates what other authors have emphasized, namely that the finding of abnormal cells in the stomach is of significance and should lead to exhaustive study to exclude or verify the presence of carcinoma.

In the group without cancer, it appears that the Papanicolaou smear was more reliable than X-ray in ruling out this disease. However, again, the relatively high incidence of false-negative smears indicates definitely that cancer should not be excluded on

the basis of the smear alone. In short, in the absence of other evidence for or against carcinoma, we would not recommend laparotomy solely on the basis of a positive smear, nor would we consider the disease to be ruled out on the basis of a negative smear.

The combination of positive X-ray and positive smear would seem to point very strongly to a diagnosis of cancer, the smear serving as corroborative evidence for the roentgenologic findings.

The following cases illustrate the manner in which X-ray examination and Papanicolaou smear may supplement each other:

Case 1. 73-year-old woman with intermittent abdominal pain for 2½ years. On physical examination there was left upper quadrant tenderness. X-ray (Figure V) revealed a shelf of barium in the cardia



FIGURE V

Gastric lesion in Case 1. X-ray impression was ulcerative carcinoma. Papanicolaou smear negative. At surgery benign ulcer found.

along the lesser curvature. An irregular 2 c.m. crater with a nodular defect below it was also noted. The impression was ulcerative carcinoma. Papanicolaou smear was negative. At surgery a benign 3 c.m. ulcer was found.

Case 2. 72-year-old woman with feeling of abdominal fullness, vomiting, weakness and weight loss. Ascites was present. X-ray (Figure VI) showed definite narrowing in the lower third of the stomach with 75 per cent retention. The impression was ex-



FIGURE VI

Gastric lesion in Case 2. X-ray impression was carcinoma. Papanicolaou smear positive. Paracentesis fluid positive for tumor cells.

tensive carcinoma. Papanicolaou smear was positive, containing a giant cell shown in Figure IV. At paracentesis malignant cells were discovered on blocks prepared from the abdominal fluid. No operation.

Case 3. 77-year-old man with fever and chills for 3 weeks. No gastro-intestinal symptoms except slight "gas" for 2 weeks. Persistent, unexplained fever while in hospital. X-ray (Figure VII): Intrinsic gastric lesion in region of the cardia, suggesting lymphoma. Papanicolaou smear was positive. At laparotomy a large fungating mass was found on the posterior wall of the stomach in the cardia. Biopsy showed it to be a poorly differentiated carcinoma.

We cannot account for our failure to find tumor cells in the 6 cases falsely reported negative, except that in one of these the lesion was a lymphoma and in another a scirrhus carcinoma. Both of these forms of tumor have been stated by previous authors^{6,7} to be difficult to diagnose cytologically.

SUMMARY

Data obtained from the cytologic examination of gastric contents of 54 patients are presented. The Papanicolaou smear was correctly positive in 53.3 per cent of patients with carcinoma of the stomach and correctly negative in 87.2 per cent of patients without carcinoma of the stomach. This procedure appears to be chiefly of value as corroborative evi-



FIGURE VII

No gastro-intestinal symptoms except mild "gas." The gastric lesion suggested lymphoma to the roentgenologist. Papanicolaou smear positive. At operation a large fungating undifferentiated carcinoma found on the posterior stomach wall in the cardia.

dence for clinical and roentgenologic data. The presence of tumor cells in a smear is of significance and should lead to exhaustive study to exclude cancer of the stomach. Absence of tumor cells, per se, does not exclude carcinoma.

We are grateful to Miss Catherine Berry for her assistance in preparing, screening and photographing the smears.

Expenses incident to this study have been partially defrayed by a gift from the Mary Dexter Fund, Inc., Providence, R. I.

BIBLIOGRAPHY

1. Ulfelder, Howard: Medical Progress: Exfoliative Cytology. New Eng. J. Med., 241:236-240, 1949.
2. Graham, R. M., Ulfelder, H., and Green, J. T. H.: The Cytologic Method As An Aid in the Diagnosis of Gastric Carcinoma. Surg. Gyn. and Obs., 86:257-259, 1948.
3. Pollard, H. M., Bryant, H. C., Block, M., and Hall, W. C.: Diagnosis of Gastric Neoplasma. J. A. M. A., 193:71-74, 1949.
4. Richardson, A. R., Queen, F., and Bishop, F. H.: Cytologic Diagnosis of Material Aspirated From Stomach. Am. J. Clin. Path., 19:328-40, 1949.
5. Swarts, J. M., Rogins, Alex. B., Bernstein, A., and Myer, Jacob: Gastroenterology. 14:265-74, 1950.
6. Ulfelder, H., Graham, R. M., Meigs, J. V.: Further Studies in Cytologic Method In Problem of Gastric Cancer. Ann. Surg., 128:422-424, 1948.
7. Vincent Memorial Laboratory Staff, Vincent Memorial Hospital: The Cytologic Diagnosis of Cancer, 1st Ed. 1950, pp. 158-168, 206-207.

RESPIRATORY COMPLICATIONS OF ACUTE POLIOMYELITIS: OBSERVATION OF 149 CASES AT A COMMUNITY HOSPITAL*

SIDNEY CURELOP, M. D.,** and HAROLD A. BRAUN, M. D.***

Respiratory impairment is responsible for the major therapeutic problems as well as much of the mortality of acute poliomyelitis. In this disease interference with efficient respiration and consequent threatening of life is dependent upon nerve cell damage in one or more of three anatomic sites: the cervico-dorsal segments of the spinal cord, the cranial nerve nuclei and the respiratory center. Thus, inadequate ventilation may result from poor chest expansion and diaphragmatic descent; from airway obstruction due to pharyngeal pooling of secretions and vocal cord paralysis; from abnormal rate, rhythm or depth of respiratory effort, or from any combination of these three.

The primary purpose of this report is to review certain features of inefficient respiration as they were observed during the hospitalization of 149 cases of acute poliomyelitis at the Eastern Maine General Hospital during 1949, and to discuss some aspects of therapy based on these observations.

Abortive poliomyelitis by definition¹ is impossible to diagnose with accuracy. No cases are included in our figures.

Several patients who probably had mild, non-paralytic poliomyelitis have been excluded from this series because of an inadequate record of symptoms, physical or laboratory findings. Thus all of the non-paralytic cases included below had in addition to a history and physical examination characteristic of poliomyelitis, elevation of the spinal fluid white cells (above 12 per cu. mm.) and/or protein (above 50 mg. per 100 ml.).

No case was classed as paralytic unless definite muscle weakness was apparent a week or ten days after the onset of signs and symptoms of central nervous system involvement.¹

A diagnosis of bulbar involvement was not made unless definite and more than fleeting cranial nerve weakness was apparent.

Certain data are presented briefly to characterize the epidemic. The age incidence is shown in Table 1. The fact that over one-half of the patients were more than 14 years of age illustrates the increasing importance of poliomyelitis as a disease of adults

TABLE 1
Distribution of All Cases and of Paralytic Cases According to Age Group

	AGE IN YEARS					
	0-4	5-9	10-14	15-19	20-24	25 and above
Number	23	28	21	21	18	38
Per Cent of 149 Cases	15.4	19.4	14.0	14.0	12.0	25.4
Number Paralytic	13	18	12	13	15	22
Per Cent of 93 Paralytic Cases	13.7	20.6	12.7	13.7	16.0	23.4

and may reflect the rural nature of the population which this hospital serves.

Paralysis was present in 93 patients, 62% of the total. Of these, 4 had no extremity weakness and 27 had slight or moderate weakness in only one extremity. The remaining 62 (67% of the paralytic cases) had involvement in one extremity or multiple extremity involvement. The distribution of the paralytic cases in various age groups closely parallels the distribution of all the cases among these groups.

Two patients (1.3%) died. Both were respirator cases. One was not admitted on the poliomyelitis service and had diabetes complicated by periods of hypoglycemia and terminal gastrointestinal bleeding. Autopsy was not performed. The other fatal case is reported in the section discussing tracheotomy.

Bulbar involvement occurred in 12 patients (8.1%). Three of the bulbar patients presented no airway problem since they had weakness only of the upper group of cranial nerves. The remaining 9 of the bulbar group presented a therapeutic problem due to impairment of cranial nerves IX, X, XI, or XII and required postural drainage, suction and abstention from oral feedings. Five of these were respirator patients.

Tracheotomy was performed in two cases. The first was an 11-year-old boy who entered on the third day of disease with nasal speech and regurgitation of fluids and a deviated uvula. Because of increasingly shallow respirations he was placed in a respirator on the second hospital day. There was no difficulty maintaining an apparently clear airway but after

* From the Eastern Maine General Hospital, Bangor, Maine.
** Intern, Eastern Maine General Hospital.
*** Assistant in Medicine, Tufts College Medical School, and Teaching Resident in Medicine, New England Medical Center (assigned to the Eastern Maine General Hospital).

several hours of increasing restlessness he became cyanotic and a tracheotomy was done 6 hours after mechanical respiration was established. There was marked and dramatic improvement thereafter and he was removed from the respirator 17 days later.

The second tracheotomized patient was a 50-year-old man who had minor difficulty swallowing when admitted on the third day of disease. On the third hospital day he became confused, sweaty and drowsy. Respirations became increasingly shallow and irregular and he was placed in a respirator. He coordinated poorly with the machine but when removed, rapidly became apprehensive and had barely perceptible chest expansion. There was no difficulty in preventing accumulation of pharyngeal secretions and he was allowed to have sips of water until mild pooling was noted after he had been in the machine 27 hours. Three hours later he suddenly became cyanotic and had obvious upper airway obstruction. Extraocular muscle palsies and left facial weakness were apparent. Tracheotomy was done and large amounts of mucous were suctioned from the tracheobronchial tree. His color improved but he remained slightly cyanotic, comatose and died 8 hours after tracheotomy was done.

Autopsy revealed right lower lobe pneumonia and very little mucous in the tracheobronchial tree. Histologic changes of poliomyelitis were apparent throughout the spinal cord and brain, with marked destruction in the reticular substance of the medulla. (This case has been previously reported in detail.²)

This patient provided clinical and histologic evidence of respiratory center damage. In retrospect, he would have had a better chance for survival if fluids had been prohibited after his difficult swallowing first became significant on the second hospital day. Stupor, confusion, cyanosis and apprehension in a respirator patient with involvement of the lower group of cranial nerve nuclei should have been considered indication for earlier tracheotomy.

The respirator was used for 24 patients, an incidence of 16%. Both of the deaths were in this group. Two patients are still using the machine part of the time, 290 and 275 days respectively after the onset of the disease.

Observation of these respiratory complications at the time of the outbreak, and subsequent review of the cases have accentuated certain principles of therapy to be considered below.

Patients with acute poliomyelitis should be hospitalized early. The danger of watchful waiting at home is demonstrated by 8 of our cases who had obvious need for a respirator on entry or within 8 hours thereafter. Several of these patients first noted dyspnea, apprehension, weak voice, or inability to breathe satisfactorily while en route to the hospital.

M. R., a 40-year-old housewife, had been ill for 4 days before admission with malaise, headache, stiff neck and back. On the day of entry she noted weakness in both legs and increasing weakness in the right arm. Apprehension and weak cough arose while traveling to the hospital and 4 hours after admission she had to be placed in a respirator from which she was not permanently separated for 66 days.

Need for a respirator frequently could be anticipated by familiarity with the following principles. Weakness in any muscle, the respiratory muscles included, is unlikely to develop after the temperature has been normal for 12 hours. Nineteen of the 24 respirator patients were febrile when placed in the respirator and 20 of the group were inserted before the seventh day of their disease. The febrile patient needs frequent observation.

Increasing upper extremity weakness is a warning that nerve cell damage is increasing in the region of supply to the respiratory muscles. Fourteen of the respirator cases (58%) had upper extremity weakness at the time they were placed in the machine, and in some patients increasing upper extremity weakness was helpful in predicting that a respirator soon would be necessary. Eighteen (75%) of the respirator cases eventually had upper extremity weakness whereas in only 34 (49%) of the non-respirator paralytic cases did upper extremity weakness arise.

Weak cough may be the first symptom of respiratory muscle weakness. We were not aware of the significance of this symptom sufficiently early to know its true incidence, but a definite statement is recorded for 16 of the respirator cases and 13 were noted to have had a weak cough before entering the machine. The number of non-respirator cases specifically questioned about a weak cough was not large enough to be significant but we feel sure the incidence was much lower in this group. When present, a weak cough demands frequent observation for the possible development of definite signs of respiratory muscle weakness.

B. T., a 16-year-old boy, entered with 2 days of sore muscles and a stiff neck and 1 day of increasing weakness of both lower extremities. He said he could not breathe as deeply as normal and was noted to have a weak cough. There was no upper extremity weakness. Chest expansion and a rough test of vital capacity were normal. Cough steadily became weaker and 4 hours after admission he was placed in a respirator because of apprehension and irregular and very shallow respirations. He promptly became relaxed and remarked, "My lungs feel all filled up again."

The trend of events may be more helpful than a particular constellation of signs or symptoms at any given moment in deciding on the need for the respirator. This fact indicates need for a definite state-

ment on the admission record and progress notes during the febrile phase regarding the evaluation of several important items (Table 2). Cyanosis is not-

TABLE 2

Items for Periodic Evaluation in a Respirator

Suspect

1. Pulse and respiration.
2. Mental status.
3. Strength of cough.
4. Chest expansion.
5. Abdominal motion or diaphragmatic descent.
6. Estimate of vital capacity.
7. Upper extremity weakness.
8. Quality of voice.
9. Cranial nerve palsies.

able for its absence from this list, for there is general agreement that the patient with acute poliomyelitis is likely to suffer irreparable harm if this sign indicating a dangerous degree of hypoxia is allowed to appear. In a "respirator suspect" an unfavorable change in several of these items should be enough to suggest that a machine may be needed in the near future.

Cranial nerve palsies and pharyngeal pooling should not be considered an absolute contraindication to the use of the respirator in patients with definite respiratory muscle weakness, providing that an adequate airway can be maintained by suction and postural drainage. If this is impossible, prompt tracheotomy is indicated. One of the two tracheotomies performed in this group should have been done sooner. However, three patients with pharyngeal pooling and respiratory muscle weakness were treated in the respirator without tracheotomy and without apparent disadvantage.

In spite of our policy of early and liberal use of the respirator, only 6 of 24 patients could be removed from the machine for an hour or more during the first seven days of its use without showing definite signs of further need for it. Twelve patients, however, were permanently out of the respirator less than 21 days after its application. No appreciable difficulty was encountered in weaning patients from the machine.

It should be noted that chest difficulties may not be at an end once the patient has left the respirator. Follow-up information is available approximately 10 months after the discharge of 17 of the 20 patients who left the machine. Eleven of these 17 have noted no dyspnea or significant respiratory infection. Three of the remaining 6 had moderately severe respiratory infections. One needed oxygen for sev-

eral days. The second had two severe chest colds associated with fever and pleuritic pain and was said to have "filled up with mucous which he could not cough up." The third also had two severe colds with a weak cough which handicapped maintenance of a clear tracheobronchial tree. None was suspected of having atelectasis.

The other three did have severe pulmonary complications. A 52-year-old man had needed the machine for 33 days and during that period had had no pulmonary complications. Six weeks after leaving the respirator he developed sudden dyspnea and was transferred from the physiotherapy home to a general hospital where he was found to have a weak and ineffectual cough and severe pulmonary infection. Tracheotomy was done to facilitate tracheal suction. However, respiratory distress increased, and he died one month after the onset of this complication. Autopsy revealed atelectasis of the entire left lung, right lower lobe and portions of the right upper and middle lobes.

A second patient had had iliofemoral thrombophlebitis and a probable pulmonary infarct during his 19-day period in the respirator. Eight weeks after leaving the machine mild coryza progressed to a severe infection with large amounts of secretion which he was unable to raise because of a weak cough. He was rushed to a general hospital where there was clinical and X-ray evidence of left lower lobe atelectasis. This was relieved by postural and bronchoscopic drainage which removed large amounts of bloody purulent secretion. Though his cough is still weak he has had no further respiratory trouble.

The third patient was a 7-year-old girl who had used the respirator for 11 weeks. Two months after leaving the machine she was transferred from the physiotherapy home to a hospital because of a febrile illness with sore throat and a weak, non-productive cough. She was well in two weeks. One month later, she became acutely ill with labored respirations, fever and inability to cough. X-ray examination of the chest revealed right lower lobe atelectasis. Postural drainage, oxygen and penicillin constituted the treatment and she was well in one week.

SUMMARY

Respiratory complications observed during the hospitalization of 149 cases of acute poliomyelitis are discussed. Twelve patients had bulbar involvement and 24 were placed in a respirator. Two patients died.

Certain principles of therapy and means for anticipating need for a respirator are presented. Cranial nerve palsies and pharyngeal pooling of secretions are not considered to be an absolute contraindication to the use of the respirator in patients with definite

respiratory muscle weakness. The significance of pulmonary complications weeks or months after the patient has left the respirator is emphasized by follow-up data on 17 respirator patients.

BIBLIOGRAPHY

1. Horstmann, Dorothy, M.: Clinical aspects of acute poliomyelitis. *Am. J. Med.*, 6:592-605, 1949.
2. Wadsworth, Richard C.: Clinico-pathological exercise. *J. Maine Med. Assoc.*, 40:352-356, 1949.

ACTH AND THE GENERAL PRACTITIONER

ETHAN ALLAN BROWN, M. D.* **

There are three good reasons why every good general practitioner should familiarize himself with the background and use of the adrenocorticotrophic hormone. It is, first of all, now generally available. Enough of its properties are known to enable any qualified physician to use it safely in a number of syndromes, for some of which there is no substitute treatment. Increasing numbers of patients, having been hospitalized for studies, are at a point where interval injection treatment can be continued by their own physicians.

The first question is: how is ACTH administered? It is available (from Armour, Wilson and National Drug) as a stable solution, or as a sterile powder to be dissolved in simple saline. The dose varies from 5-30 mgm. injected subcutaneously or intramuscularly at 6-8 hour intervals. It is never used intravenously. In hospitalized patients, it is usual to begin with 5 mgm. q. 6. h. for the first day and with 10 mgm. q. 6. h. for the next two days. In the absence of improvement, 15 mgm. q. 6. h. is given for the next two days and 20 mgm. q. 6. h. for the following two. In some cases, 40-50 mgm. doses, 3-4 times daily have been necessary. With remission, the interval is widened to 8 or 12 hours and then to 24 or 48 hours while the doses are successively decreased by 5 mgm. each. In some patients, single maintenance injections can be spaced one or more weeks apart.

Specifically, in our asthmatic patients in acute distress, the initial doses are 25 mgm. q. 6. h. for two days and 20 mgm. q. 6. h. for two more days. With improvement, the dose is reduced by 5 mgm. and the interval widened to 8 and 12 hours. Then injections are given once daily, then with wider intervals of 2 or 3 days. The patient is often ambulatory after the first three or four days of treatment.

Side reactions are infrequent on these dosage schedules, which, although inconvenient, are not im-

possible for ambulatory patients. The new, slow-acting forms of ACTH will still further simplify the mechanics of treatment.

What conditions can the general practitioner safely and effectively treat? The answer depends somewhat on the hospital facilities for differential diagnosis and laboratory procedures, and the physician's own training. Addison's Disease is perhaps best left for the expert, who will undoubtedly use Compounds E or F. On the other hand, serum sickness, exfoliative dermatitis and penicillin and sulfonamide sensitivities can be treated by the schedule outlined. Acute alcoholism and alcoholic and narcotic addiction require sanatorium facilities, but status asthmaticus and Loeffler's Syndrome can, with perhaps occasional guidance by the consultant, be handled by the general practitioner, especially if the patient is hospitalized or has had the requisite laboratory studies. Patients with acute rheumatic fever and acute gouty arthritis may require impractically long hospitalization for the general practitioner with limited country hospital facilities. The follow-up treatment, however, for a number of ambulatory patients with eye conditions probably belong in the general practitioner's hands. These include acute conjunctivitis, chorioiditis, iritis, keratitis, uveitis, optic neuritis, sympathetic ophthalmia and acute secondary glaucoma.

ACTH will relieve hay fever, but its use for poli-nosis would hardly seem justified. ACTH may be extremely useful in a number of conditions which are uncommon but not rare. Such patients should have been hospitalized at one of the medical centers or studied by the specialist and referred to their own physicians for follow-up treatment. These conditions include rheumatoid, gouty, or psoriatic arthritis, psoriasis, dermatomyositis, periarteritis nodosa, urticaria, and severe, intractable vasomotor coryza. From this list, lupus erythematosus and multiple myelomatosis had best perhaps be excluded, as should lymphomatosis, leukemia, agranulocytosis and pulmonary berylliosis, especially since, in some of these, remission may be followed by relapse and death.

The general practitioner will probably not want to use ACTH in the conditions in which it is of questionable value, such as osteoarthritis, thyrotoxicosis, and in less common syndromes, as multiple sclerosis,

* Physician-in-Chief, Allergy Clinic, Boston Dispensary, Boston, Mass.
** Presented at the Hancock County Medical Society, October 11, 1950.
The expenses of the work described were defrayed, in part, by The Asthma Research Foundation, Inc., Boston 15, Massachusetts.

schleroderma, and pernicious anemia. In some cases of pemphigus and pneumonia, immediate remission is sometimes seen. In these last, the emergency nature of the condition and its lack of response to other forms of treatment, will affect the physician's decision.

ACTH should not be used in the conditions in which we know there is no effect, namely, herpes zona and simplex, varicella, poliomyelitis and peptic ulcer. There are also no known effects in pancreatic cystic fibrosis, sarcoidosis, and progressive muscular atrophy or dystrophy.

It is most important for the general practitioner to know the conditions in which ACTH may have a deleterious effect. These are the syndromes in which it is also contraindicated, as they occur alone or in association with other conditions. These are diabetes, hypertension, congestive heart failure, acne, hirsutism, peptic ulcer, furunculosis, tuberculosis, and Cushing's Syndrome, as well as osteoporosis. In, for an example, an asthmatic patient with hypertension, clinical judgement will dictate the type of treatment. In some of our patients the tension has lessened as the asthma improved.

How does ACTH affect such very different conditions, which would in some cases seem to have so little in common? All present explanations are, in some measure, oversimplifications. We know that ACTH stimulates the adrenal cortex to produce Compounds E and F. As far as we know, there is no deficiency of these or other hormones in the patients who respond to ACTH, or to cortisone treatment. The remission occurs when the compounds are present in excess of body needs. It may be that the tissue cells utilize cortical hormone lowering its blood level. The anterior pituitary responds by secreting ACTH, which acts to restore the original blood levels, making an adequate supply available for ordinary or emergency uses. The circumstances associated, however, with increased cortical secretion are also those which cause hyperactivity of the autonomous nervous system, and an increased secretion of epinephrine, which, in itself, stimulates ACTH production. In other words, we may think of some of the states relieved by ACTH as being stress syndromes which the body ordinarily meets by secreting epinephrine, which may in turn stimulate the anterior pituitary which affects the adrenal cortex which increases the blood levels of Compounds of E, F, and similar hormones.

What metabolic effects can we expect to see following the injection of ACTH? There is first, the secretion of Compounds E and F and the related 17-hydroxycorticosterone-like-steroids. These are concerned with the conversion of glucose to glycogen in the liver and muscle tissue. They mobilize fats and amino acids from tissue proteins, which then

become available elsewhere in the body for protein synthesis as well as for energy and the glucose-glycogen conversion. When this process is too rapid, the patient presents a transient glycosuria and a hyperglycemia. There is an increased excretion of nitrogen, potassium, phosphorus, and calcium with a retention of sodium, chloride and fluid. When excessive, these can be corrected by decreasing or omitting several doses or placing the patient on a low-salt, high-potassium intake. Overstimulation with ACTH may lead to the excess production of adrenal androgen, causing, in females, masculinization, amenorrhea, and hirsutism. Fortunately, these do not occur at the usual treatment dosage levels.

What other affects may be observed in patients under treatment? There is first, a drop in the eosinophil count, which may occur in the absence of clinical response. There may be a drop of 50% or more in the lymphocyte cell count, and an increase up to 100% in the polymorphonuclear cell count. In anemic individuals, there is a reticulocytosis and a rise in the red blood corpuscle count. The platelet count increases. If the sedimentation rate is increased, it diminishes. If there is a high plasma fibrinogen, it decreases. High gamma globulin or serum albumin levels return to normal. There is a low glucose threshold and increased excretion of uric acid.

The patient acquires an immunity at cellular levels to chemicals, such as iodine or mustard gas, to bacteria, as the pneumococcus, and to drugs, as penicillin, as well as to antigens such as pollens. Inflammatory reactions, fever, and pain are all inhibited and neurone effects cause a general euphoria.

What side reactions may the general practitioner meet? These are in some cases, as described in the early reports, due to impure material, to high dosage, or to that special exaggeration of risk, which is due to extreme scientific caution. Actually, with average doses and on average patients, the usual untoward reactions are easily recognized and pathologically reversible with either diminution of dosage or with the application of known simple physiological principles of treatment.

Edema is usually heralded by weight gain. All of our patients have gained weight, the majority of them, however, from increased food ingestion. A low-sodium chloride, high-potassium diet will quickly bring the patient into balance. Decreased doses or a wider interval between injections will cause the necessary diuresis.

If the patient loses weight, the doses may be too high. The nitrogen loss can be corrected by a high protein diet. Testosterone (25 mgm. by mouth) has been recommended. We have not had to use it. Rarely, the patient may present a hyperglycemia or a glycosuria. This disappears with the decreased dosage. We have not had to use insulin.

During the period of water retention, due to electrolyte imbalance, hypertension may occur. If it does not decrease with smaller doses of ACTH, the treatment should be discontinued. Other side effects are really extensions of the conditions noted. Patients on high-potassium diets will not demonstrate fatigue, weakness, exhaustion, or paraesthesiae. When these occur, it is necessary to increase the potassium intake or lower the ACTH dose, or cease treatment for 7-10 days.

Psychic changes are usually shown as a mild euphoria. If they are more intense, and of a degree to be defined as marked elation or depression, sedatives should be administered or ACTH dosage reduced.

The endocrinological changes as "mooning" or hirsutism are warning signs of too high a dose. If they occur at levels of ACTH dosage which are not effective, the patient is unfortunately unsuitable for this type of treatment. They, too, are completely reversible on cessation of ACTH therapy.

Are the ancillary studies required of any great complexity? We have not found them so and in recent patients have omitted many of them, preferring the clinical judgement of the day to the laboratory reports several days old. Their omission often enables the patient to bear his financial burden more easily.

Eosinophil counts are important and should be done before initiating treatment and 4 hours after each morning injection of ACTH. The usual decrease is 50% or more. Eosinophil cells may sometimes completely disappear from the blood stream. Some patients do not show a decrease, although presenting a good clinical response. An occasional patient shows an eosinopenia with no clinical result. If the pre-treatment count is very high or very low, high doses of ACTH may be needed to effect it.

The uric acid-creatinine ratio is not dependable, nor is the urinary excretion of 17-ketosteroids to be depended upon. It is not of practical importance since the reports are usually several days old and useful, therefore, only for research purposes.

The clinical criteria are, as usual, best for every day treatment. A decrease in temperature is most important, as is decrease in pain in syndromes in which either is present. If, however, temperature or pain appear, treatment with ACTH must cease until their cause has been determined.

Are there contraindications to ACTH treatment? These are not too numerous and are obvious from the previous discussion. Excepting in the hands of the expert, or under ideal hospital or research laboratory conditions, the general practitioner would be advised not to use ACTH in patients with any type of hypertension, nephritis, or diabetes. Patients with

congestive heart failure are poor candidates, as are endocrinological complexes, as mentioned above.

What conditions can best be treated by the general practitioner? This will depend in part upon the severity of the conditions treated. After initial hospitalization, drug sensitiveness, serum sickness, and exfoliative dermatitis, contact dermatitis, and giant urticaria can now be treated on a routine of 25 mgm. (six hourly) for two days, with 20 mgm. (six hourly) for one day, and then respectively for one day each, 15 mgm., 10 mgm., and 5 mgm., at 8, 12 or 24-hour intervals, ceasing treatment on the sixth day. Since these are often self-limiting conditions; there may be no recurrence on cessation of treatment.

In contact or atopic dermatitis, exacerbation occurs when treatment is stopped unless the known allergen is identified and eliminated. This is also true in the patient with bronchial asthma, especially in the type associated with true sensitivities.

The treatment of gout requires large doses and auxiliary medication with colchicine and other drugs. Rheumatoid arthritis requires treatment for 7-21 days or more, and good results cannot be expected in patients severely crippled and presenting contractions or deformities. Acute rheumatic fever will require 2-4 weeks of treatment, and care must be taken that the cardiac load does not become too great. Less common conditions, such as lupus, dermatomyositis, and scleroderma undoubtedly belong in the hands of the expert, as does acute hemolytic jaundice.

In our own hands psoriasis has not responded to 30 mgm. q. 6. h. for 7-10 days and the reports state that complete reversal to normal skin does not occur. In any case, long, continued high dosage is required.

Some of the new reports are concerned with remarkable results in ulcerative colitis. The patients require 25 mgm. q. 6. h. and then 25 mgm. q. 12. h., severely ill patients needing treatment for as much as two weeks. The remission, however, seems to be prolonged. In the blood diseases, such as acute leukemia, chronic lymphomas, multiple myelomas, remissions are temporary only. In early aplastic anemia, the patient will remain in remission if not exposed thereafter to the original or to additional toxic agents.

For those who wish detailed knowledge of the subject, copies of the Proceedings of the First and Second Clinical ACTH Conferences¹ are necessary, as are the various booklets, superbly written and available to all practitioners on request from the Armour Laboratories. The subject has been recently reviewed in a series of complete and judiciously balanced papers by Thorn and his colleagues.² Recent issues of the *J. A. M. A.* have carried papers concerned with individual disease syndromes, as well as the treatment of a number of miscellaneous conditions. One review of the background of ACTH has appeared in

the *Quarterly Review of Allergy and Applied Immunology*.³ Reprints are available from the author. Another, on the use of ACTH in allergic conditions will appear in the *Annals of Allergy* early next year. A selective bibliography may also be obtained on request from the New York Academy of Medicine Library.⁴

For any given case the general practitioner would like to treat, both the material and instructions regarding its use are within easy reach. In ACTH we probably have one of the most important drugs discovered in the last fifty years. It, or one of its homo-

logues, will eventually be carried in every physician's bag.

REFERENCES

1. Proceedings First Clinical ACTH Conference. The Blakiston Company, Philadelphia, 1950.
2. Thorn, G. W., et al.: The Clinical Usefulness of ACTH and Cortisone. *N. E. M. J.*, 242:783, 1950.
3. Brown, Ethan Allan: ACTH. Preliminary Considerations. *Quart. Rev. Allergy and Applied Immunol.*, 4:67, 1950.
4. New York Academy of Medicine Library. Cortisone and ACTH. A Selective Bibliography, 1950.

THE SURGICAL TREATMENT OF LESIONS OF THE LOWER ESOPHAGUS AND GASTRIC FUNDUS* **

EMERSON H. DRAKE, M. D.***

It is only within the past fifteen years that the development of Thoracic surgical technique has advanced to the point where a safe direct surgical attack can be carried out on lesions of the lower esophagus and upper portion of the stomach. This has been accomplished through the development of a number of refinements. The most important of these is safe anesthesia, using gases under positive pressure through an endotracheal tube, so as to allow free opening of the chest cavity and a more direct approach to structures lying above and immediately beneath the diaphragm. The new antibiotics have led to a decrease in the incidence of infection, and the shock of prolonged surgery has been decreased through the more liberal use of transfusions and intravenous feedings. With these technical developments, a more marked interest has appeared in the accurate radiological and endoscopic diagnosis of lesions in this region. It is the purpose of this paper to briefly review some of the more common lesions in this region, and to show how surgery has brought relief to a variety of rather distressing conditions arising in this area.

The early surgical approach to defects of the diaphragm and lesions in the cardia of the stomach, was by the abdominal route. The upward convex curvature of the diaphragm above the rigid rib margin makes this approach a less direct one than is gained through the lateral chest wall. After resection of the ninth rib, the convex surface of the diaphragm is encountered directly beneath the chest wall, and on opening the diaphragm, the cardia of the stomach

is readily encountered. This gives a far better exposure than is obtainable by the abdominal route, and is steadily gaining favor as the elective approach to this area. It is only in the case of adults with other abdominal lesions requiring surgery, or infants, who tolerate an open chest cavity less readily than adults, that the sub-diaphragmatic approach is preferable.

Diaphragmatic Hernia

The increased incidence of diaphragmatic hernias in recent years is the result of recognition by more frequent X-ray study of the gastro-intestinal tract in persons suffering from digestive symptoms. Diaphragmatic hernias are of three types: 1) Congenital, 2) Acquired, and 3) Traumatic.

The majority of the hernias found at X-ray examination are entirely asymptomatic, and as such, warrant no treatment. However, a number of varied symptoms may be caused by these lesions. Anemia, due to decreased iron ingestion and bleeding from esophagitis and gastritis in the herniated portion of the stomach, is a frequent finding. Hypoproteinemia, also due to insufficient dietary intake, is likewise a common finding. These changes in themselves may be sufficient to warrant surgical treatment, but usually mechanical factors are also present. Obstruction to swallowing may develop. This may be of one of two types. An esophagitis and consequent scar tissue stricture of the lower end of the esophagus may be caused by regurgitation of acid into the lower esophagus, or a mechanical obstruction of the esophagus or stomach may result from angulation of the portion in the hernial sac. This will lead to complaint of a "sticking" sensation in the lower chest, particularly on swallowing heavy foods.

Occasionally acute incarceration and strangulation

* From the Surgical Service, Maine General Hospital, Portland, Maine.

** Read at the 96th Annual Session of the Maine Medical Association, June, 1950.

*** Junior Surgeon, Maine General Hospital.

of the hernia may lead to an acute surgical emergency, as reduction and repair must be accomplished before gangrene and perforation take place. In the very extensive herniations, respiratory and circulatory embarrassment may be caused by pressure of the hernial sac on the heart and lung. This is frequently the case in the congenital variety found in infants.

In addition to these very specific indications for surgery, there are some patients who have rather vague symptoms, such as substernal discomfort directly after eating, particularly on lying down. This is relieved by a change in position. Others are bothered by acid or gaseous eructation such as to be a major source of discomfort. If X-ray studies demonstrate a trapping of ingested barium in the herniated segment of the stomach, it is reasonable to feel that the hernia itself is the cause of these symptoms.

Repairs consist in a direct surgical approach to the diaphragmatic defect, with resuturing of the diaphragm about the lower esophagus, and closure of defect to prevent further herniation. It is usually advisable to crush the phrenic nerve so as to produce a temporary paralysis of the diaphragm until satisfactory healing has taken place. The improvement in symptoms following the surgical repair of diaphragmatic hernia is unusually marked, and the operative morbidity and mortality are minimal.

Case No. 1. E. A., M. G. H., No. 81591, a 52-year-old housewife, was admitted to the hospital for a study of persistent anemia. She gave a history of several years of intractable anemia associated with a chronic cough and the production of large quantities of frothy sputum. For twenty years previously she had suffered from pains in the lower chest bilaterally, radiating upward to the left shoulder, associated with the ingestion of food, and with lying on her back. There was considerable gaseous eructation. She was unable to walk more than a short distance because of weakness and shortness of breath. She also suffered from chronic constipation.

Physical examination of the heart revealed systolic and diastolic murmurs. Blood hemoglobin was 45 per cent, 6.5 G., Serum protein 6.52 gms., Albumin 3.11, and Globulin 3.41. A barium swallow demonstrated the presence of a large diaphragmatic hernia on the left, with a complete inversion of the stomach so that the entire body lay in the left chest. (Fig. 1) A barium enema revealed a segment of transverse colon likewise caught up in the hernial sac. A diagnosis was made of mitral stenosis and regurgitation due to rheumatic heart disease, with marked anemia, secondary to a large diaphragmatic hernia.

On digitalization the heart was compensated, and on multiple transfusions the hemoglobin rose to 83 per cent, 12 gms. On March 22, 1949, a transthoracic

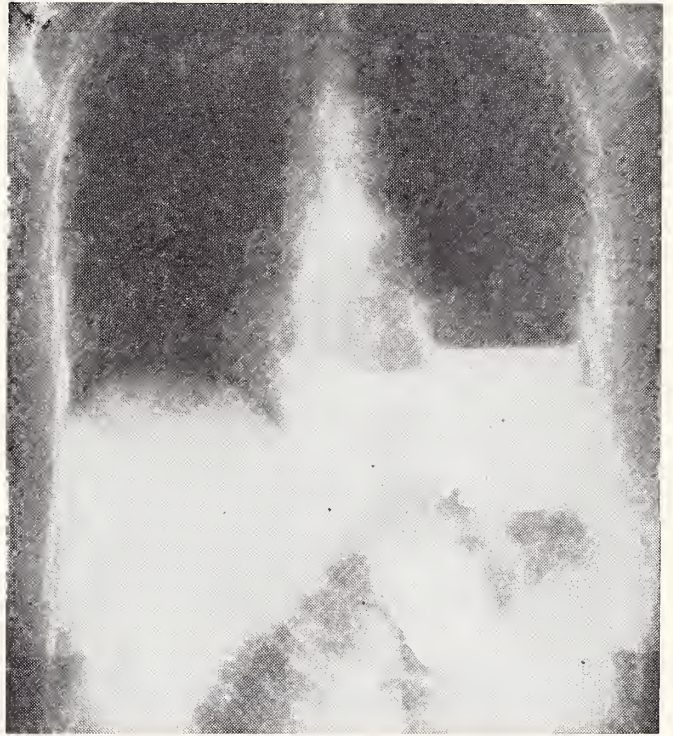


FIGURE 1
DIAPHRAGMATIC HERNIA
Barium swallow, showing fundus directed downward, and the body rotated upward into the left chest.



FIGURE 2
DIAPHRAGMATIC HERNIA AFTER REPAIR
Showing the stomach returned to its normal position beneath the diaphragm.

repair of the hernia was carried out, with replacement of the colon and stomach. The post-operative course was complicated by the development of a transient thrombophlebitis of the left leg, which cleared on anticoagulant therapy. An abscess also developed in the left buttocks, at the site of a penicillin injection to produce a febrile episode post-operatively, but the patient was discharged home on April 12, 1949. For several months after operation she suffered from moderate diarrhea, but this subsided spontaneously. The anemia did not recur, and a gastrointestinal series nine months later (Fig. 2) showed the stomach in normal position. She was eating and swallowing well, her heart was compensated, and she had no residual symptoms.

Cardiospasm

A second condition affecting the lower esophagus is cardiospasm or achalasia. The primary pathology here is a neuro-muscular dysfunction of the circular muscle fibers in the region of the cardiac sphincter. In the early stages and in mild forms of the disease, occasional acute attacks of substernal discomfort on swallowing are felt just beneath the Xiphoid, radiating through to the back. These pains come inconstantly and are often associated with times of emotional stress. X-ray shows a temporary delay in emptying of the esophagus into the stomach.

These patients usually respond to reassurance and mild sedation. If the frequency of spasms accompanying discomfort becomes so severe as to cause considerable disability, it can frequently be relieved by dilatations of the cardia with a mercury-filled bougie.

Occasionally the symptoms of cardiospasm may persist over a period of many years, leading to a severe disability. There is an inability to swallow solid foods developing ultimately into a state of chronic starvation. Those persons have, by X-ray, a marked stenosis of the lower esophagus, with considerable dilatation and tortuosity above it. Barium leaves the esophagus only at a very slow rate, leaving behind a residual for many hours or days. Pneumonia is a frequent complication, as the esophagus filled with ingested material has a tendency to overflow into the trachea, particularly during the sleeping hours. X-ray pictures of the lungs show evidence of chronic pneumonitis and fibrosis. It is this group that benefits most markedly from surgical therapy. Pre-operatively these patients are starved, and require régime of hydration, blood transfusion, chemotherapy and usually Levine tube drainage, to rid the esophagus of retained food products.

The surgical therapy consists of enlarging the opening from the esophagus to the stomach by some type of plastic procedure. As the muscle is the only layer involved, splitting the circular muscular fibers

should be sufficient to relax the orifice. There is, however, a tendency for the muscle to contract again, so the adoption of a full thickness incision has been made, with a side to side anastomosis of the esophagus to the fundus of the stomach. This permanently destroys the sphincter mechanism, but does allow an adequate outlet to the esophagus, and in most cases produces a satisfactorily functional result. The hypertrophied esophagus does not recover its normal size and shape post-operatively, but under the fluoroscope, the barium is seen to pass into the stomach without delay. Clinically, the patient is once again able to eat any sort of solid food.

Case No. 2. R. C., M. G. H., No. 89590, a 67-year-old housewife, whose first hospital admission was on January 4, 1950, for cough, fever, headache, and disorientation. A diagnosis was made of pneumonia, with probable encephalitis or meningitis. The infection cleared on aureomycin therapy, but she was unable to absorb any food taken by mouth, and failed to gain strength or put on weight. There was a past history of difficulty in swallowing for thirty years. In the past ten years she had been forced to limit herself to fluids and very soft solids. On frequent occasions after eating she had noticed a swelling of her neck, and had consulted a physician concerning a possibly enlarged thyroid gland. She had had frequent episodes of pneumonia in the previous several years.

Physical examination showed a very thin emaciated chronically ill female, who was moderately dehydrated. Her larynx was displaced anteriorly by a large fluctuant mass lying between it and the vertebral column. A chest plate showed an air-filled tubular structure lying in the superior mediastinum, with evidence of patchy pulmonary infiltrations bilaterally. (Fig. 3) A barium swallow demonstrated a markedly dilated very tortuous esophagus, with a great delay in emptying into the stomach. (Fig. 4) A diagnosis of advanced cardiospasm was made, and it was felt that the obstruction was interfering markedly with the patient's ability to recover from her acute infection.

On January 27, a feeding jejunostomy was performed, and over the succeeding two weeks the general condition improved markedly, so that on February 13, a transthoracic plastic operation was performed on the gastric cardia. The post-operative course was uneventful, and on February 24, she ate the first piece of steak she had eaten in twenty years. A post-operative barium swallow showed the dilatation of the esophagus to still be present, but there was no delay in emptying into the stomach. She was discharged on March 3, and since that time has gained fifteen pounds of weight and has had no swallowing difficulty.

Carcinoma

A condition always requiring surgical intervention is primary carcinoma in its early stages. This may arise in the fundus of the stomach, progressing upward into the esophagus, or it may arise in the esophagus, passing downward into the stomach. When arising in the stomach it is usually an adenocarcinoma, and when in the esophagus is usually a squamous cell type.

Characteristically the disease is one of males, coming on in later life. The first symptom is a feeling of swallowed food "catching" in its passage through the esophagus, and progressing to a more complete obstruction in a relatively short period of time. The site of obstruction can usually be localized quite well by the individual patient, the level of the pain corresponding to the level of the lesion. At first solid foods become difficult to swallow, later even liquids are passed down with difficulty, and the signs of starvation and dehydration appear.

The diagnosis is best established by a barium swallow, under fluoroscopy, with the demonstration of a characteristic area of narrowing. Pathological diagnosis may be made by direct visualization and biopsy of the lesion through the esophagoscope.

Surgery offers the only constructive form of palliation, as X-ray therapy is almost uniformly un-



FIGURE 4
ADVANCED CARDIOSPASM

Oblique view of barium swallow, showing marked tortuosity and dilatation of the entire length of the esophagus.



FIGURE 3
CARDIOSPASM

Showing the air-filled dilated esophagus lying in the right superior mediastinum, with bilateral pneumonic pulmonary infiltrations.

effective. Bougienage may give temporary relief, but must be repeated at frequent intervals, serving only to prolong a rather miserable existence. Gastrostomy may improve general hydration, but likewise tends to make the patient more uncomfortable, without appreciable prolongation of life. If the diagnosis is made early, surgical extirpation is curative, but if delay in diagnosis takes place, there may be metastases to the glands along the lesser curvature of the stomach, the liver, the peri-bronchial nodes, or the neck.

Direct extension of the tumor may also involve the aorta, the spine, the pulmonary vessels, or bronchi. The surgical removal of a tumor in these debilitated individuals is accompanied by a somewhat higher mortality than is found in the two previously described conditions, because of the poor physical condition of the patients. However, in the absence of proven metastases, the patient suffering from carcinoma should be hydrated, transfused, and subjected to exploration. If feasible, and even in the presence of demonstrable metastases at the time of operation, a resection of the tumor-bearing esophagus should be performed so as to allow the resumption of normal swallowing function. Usually this entails a division of the diaphragm and advancement of the stomach upward into the chest, with an anastomosis of the proximal end of cut esophagus to the side of

the gastric fundus. This may take place at any level between the diaphragm and the lower cervical region. With fixation of the stomach in the chest cavity, and the provision of an adequate aperture through the diaphragm, normal swallowing function and digestive processes are restored. If the disease is diagnosed early and removal of the tumor is complete, this arrangement is compatible with a normal existence. If the disease has already metastasized, the normal function of swallowing is restored, eliminating the most uncomfortable symptoms of esophageal obstruction.

Case No. 3. E. S., M. G. H., No. 81388, a 58-year-old male manual laborer admitted to the hospital on December 8, 1948, complaining of difficulty with swallowing for two months. This was at first noticed as a feeling of "sticking" in his mid-chest on the swallowing of solid food. He was forced to cut down on the quantity and consistency of the food

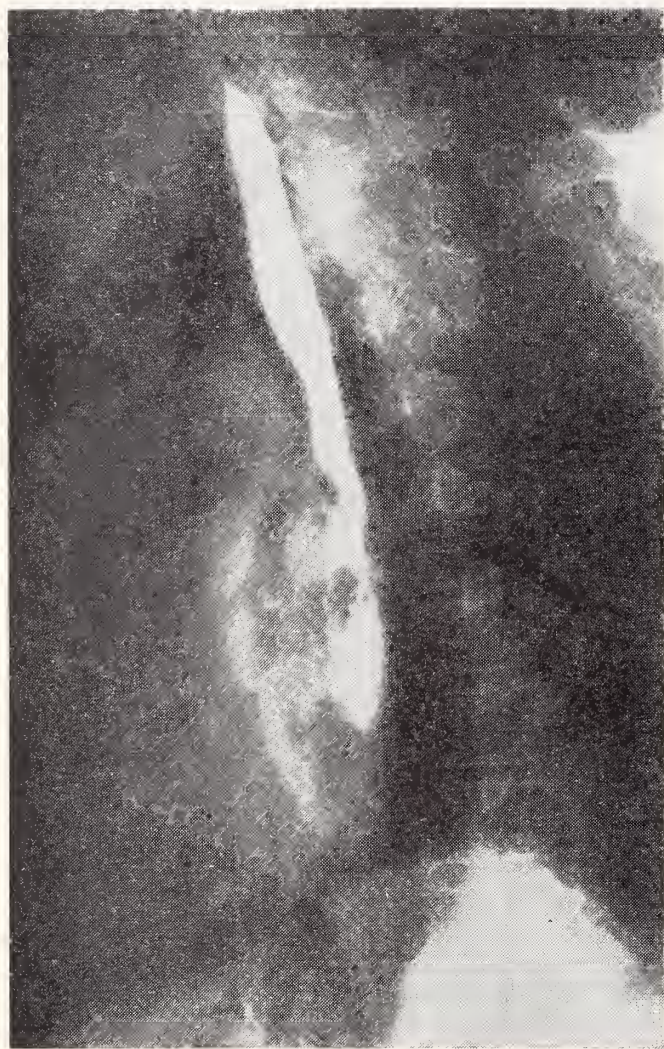


FIGURE 5

CARCINOMA OF THE ESOPHAGUS

Oblique view of barium swallow, showing a filling defect at the level of the tracheal bifurcation.



FIGURE 6

CARCINOMA OF THE ESOPHAGUS

Barium swallow showing the stomach in the left chest postoperatively with esophago-gastric anastomosis above the level of the aortic arch.

taken, his weight falling from 196 to 175 pounds. Physical examination was non-contributory except for the evidence of weight loss. A barium swallow showed a filling defect (Fig. 5) in the esophagus, just below the level of the aortic arch. Esophagoscopy performed by Dr. George Cummings on December 9 showed a fungating lesion at this level, biopsy showing an epidermoid carcinoma grade II. A transthoracic exploration on December 16 revealed a carcinoma arising in the esophagus and invading the aorta. The esophagus was freed, transecting tumor as it invaded the aorta, and an anastomosis performed between the upper esophagus and the gastric fundus, lateral to the aortic arch. The post-operative course was uneventful; a barium swallow showing a normally functioning anastomosis. (Fig. 6) The patient was discharged on his fifteenth post-operative day. His relief was but temporary, signs of recurrence appearing after two months, and the patient expiring about four months after operation, as a result of recurrent disease.

Benign Strictures

Simple benign strictures of the lower esophagus do exist, resulting from either a caustic burn or the regurgitation of acid from the stomach upward into the esophagus, to produce esophagitis, ulceration, and scar-tissue contraction. The treatment of this type of narrowing must be designed to fit the individual problem. In the milder types, bougienage, antacids, and a careful dietary régime may lead to an adequate solution. In the more advanced stages, resection, and esophago-gastric anastomosis may be necessary.

Perforations

The one lesion of the lower esophagus requiring emergency surgical therapy, with the possible exception of a strangulated diaphragmatic hernia, is a perforation of the esophagus. This may be the result of an ingested foreign body penetrating the esophageal wall, or may be spontaneous following a bout of vomiting. This is particularly so in chronic alcoholics, or others who go through a severe siege of retching. The muscular pull may be sufficient to cause a full thickness tear of the wall of the esophagus, usually just above the level of the diaphragm. The symptoms are severe, and are frequently confused with those of a coronary occlusion. There is a sharp precordial pain going straight through to the back, and frequently radiating upward to the shoulder.

der. There is a marked fall in blood pressure, accelerated pulse, and signs of peripheral vaso-motor collapse.

The diagnosis depends on the history and on the X-ray finding of air in the mediastinum. Often subcutaneous emphysema is palpated in the neck. This disease is almost always fatal, unless its occurrence is recognized early, and a direct surgical repair of the laceration carried out. If the patient survives several days without surgery, infection will make surgical repair of the laceration an impossibility.

CONCLUSION

The non-malignant lesions which involve the lower esophagus and upper stomach are readily accessible surgically. The distressing and disabling symptoms of esophageal obstruction can be relieved satisfactorily and with considerable safety in a person in fair physical condition. Tumors in the lower esophagus are curable if recognized early, and even with the finding of metastases at operation, considerable palliation is achieved through resection. The acute perforating lesions of the lower esophagus may be cured if recognized and treated before infection becomes established. It is the development of better anesthesia, blood and fluid replacement, and the antibiotics which have made this type of surgery practical.

FATAL PANCYTOPENIA FOLLOWING ANTI-HISTAMINE ADMINISTRATION

CHARLES R. GLASSMIRE, M. D., Portland, Maine

Ever since the appearance of Benadryl in 1945, a large number of the so-called anti-histaminic drugs, of varying formula, have followed in rapid succession. This change of formula has been motivated by the high incidence of side-effects found in the original preparation, and not yet completely eliminated from any of its followers.

Schwartz,¹ in 1949, reports side-effects in 61% of 217 cases with Benadryl, 35.7% in 126 cases with Pyribenzamine, 24.8% in cases with Neo-Antergan, 22.7% in 97 cases with Antistine, 20% in 89 cases with Histadyl and 7.2% in 111 cases with Neo-Hetramine.

These side-effects ranged from very mild drowsiness to marked central nervous system changes, such as mental incoördination and coma. By far the greatest number of side effects reported to date have been either on the central nervous system or gastro-intestinal tract, where nausea and vomiting have been fairly common symptoms.

The possible bone marrow and blood side-effects have received very little mention in medical literature. Clement and Godlewski² presented the first case of agranulocytosis from anti-histamine therapy in 1945. Their patient was a 13½-year-old girl, who had had three weeks of treatment for asthma. Blanton and Owens³ reported a case of granulocytopenia in 1947 due probably to Pyribenzamine. Their patient developed a white count of 1,300 following approximately eight weeks of treatment, with prompt recovery on discontinuing the drug.

Cahan, Meilman and Jacobson⁴ report a case of agranulocytosis following five and a half weeks of Pyribenzamine treatment, and mention a third case of white blood count depression following a month of Pyribenzamine treatment. Both of these patients showed prompt return of the white blood count to normal as soon as the drug was discontinued, with complete recovery. In February, 1950, Drake⁵ reported a case of agranulocytosis following seven

weeks of Diatrin therapy in an elderly man, with recovery in two weeks.

The fatalities following anti-histamine administration that have been reported to date are mostly attributable to a marked overdose of the drug and have resulted in death due to central nervous system depression. The present report is believed to be the first reported case of pancytopenia and death following the use of these drugs.

REPORT OF CASE

Mr. H. V. C., a 65-year-old resident manager of a government housing project, had been seen intermittently since August of 1946 for chronic eczema, which had been present for over forty years. A small amount of Benadryl had been used with some relief from the itching before I first saw him. A course of Hapamine was given with almost complete clearing of the skin. In January of 1949, he had some recurrence on his fingers which was controlled by minute amounts of Pyribenzamine cream. During the year 1949 he had used between three and four ounces of the ointment.

In September, 1949, it was suggested that he use an anti-histamine orally to control the itching. Neo-Antergan was the drug chosen, and this was used off and on in a dosage of 25 mgm. three times a day.

In October, 1949, the patient reported that he was feeling quite tired and seemed to have no energy. Physical examination was entirely within normal limits. No blood counts were done at this time. He admitted that he had been working quite hard in the past year, without a vacation, and felt that this might be the explanation. On suggestion he took a two weeks' vacation and returned feeling very much better.

He was seen next on December 20th, 1949, at which time he was complaining of pain and swelling in the left leg. He stated that four days previously he had noticed the onset of pain in his left groin which was aggravated by walking, and soon extended down into the left ankle. He was running a slight fever and there was some mild swelling in the left leg. Physical examination revealed a feeling of warmth in the left leg especially in the area of the groin, and there was a marked tenderness both in the groin and in the ankle. A diagnosis of thrombophlebitis of the left femoral vein was made and the patient was hospitalized for dicumarol therapy.

His routine blood counts were remarkable in that he showed a red count of 2,940,000 and a white count of 1,500. The differential count was primarily lymphocytes with a few blast forms, and only a few polymorphonuclear leukocytes. The patient was given pyridoxin, folic acid, iron and large amounts of penicillin, along with dicumarol for the thrombophlebitis. In a period of eleven days the thrombo-

phlebitis was entirely inactive, and the blood count had not risen. Three pints of blood were given the patient and he was discharged to be followed as an out-patient.

A week later his red count was 3,370,000 with a white count of 1,450. Arrangements were made to have him come into the hospital a few days later to have additional blood transfusions, but that night he spiked a fever of 105 and he was re-admitted to the hospital.

The day of the second admission a few scattered petechial hemorrhages were noted on both lower extremities. The following morning these had spread to involve the entire abdomen, chest and both upper extremities. They gradually became confluent, forming large purpuric spots over his entire body.

Sternal punctures were done on both hospitalizations. The sternal marrow when spun down showed a buffy coat of less than 1 mm. on both occasions. The differential count on the bone marrow was entirely within normal limits and no evidence of leukemia could be found. There was relative normoblast and lymphocytic increase and very little myeloid activity. There were no megakaryocytes. The overall impression was pancytopenia.

The patient was put on large doses of penicillin, a pint of whole, fresh blood was given daily, pyridoxin, yellow bone marrow, and large supplemental vitamin intake was carried on. Despite this the patient's white count steadily fell to a low of 300 on the day before his death. Red count and hemoglobin rose steadily with the blood transfusions until a high of 4,490,000 was reached. Four days before his death the patient began to show some slight mental aberration. His mind wandered and he began talking of things in the past. He was fully aware of his surroundings most of the time and seemed quite apprehensive.

The last two days of his life he put out very little urine and on the day of his death he developed Kussmaul's type of breathing. However, a CO₂ combining power at that time was 40 volume percent. He lapsed into unconsciousness about noon of that day and died about six o'clock that evening without regaining consciousness.

AUTOPSY FINDINGS

H. V. C.

Post-mortem examination showed the petechial hemorrhages in the skin which were seen clinically, and the scar of an old gunshot wound in the left lower quadrant. The other gross findings of interest included scattered petechial hemorrhages in the lungs and kidneys, and in the wall of the gastro-intestinal tract, and some recent hemorrhage into the psoas sheath on both sides. The lungs weighed 510 and 460 gms. respectively, and were slightly congested. The

heart weighed 430 gms. but was not otherwise unusual. The spleen weighed 270 gms. and the liver 1700 gms.; both were normal grossly and microscopically, except for some congestion. There was no gross enlargement of the lymph nodes, but several of them were removed for microscopic examination. The brain weighed 1300 grams and was thought grossly to have some small petechial hemorrhages in the white matter, but microscopic studies showed these to be dilated capillaries. Bone marrow was removed from the sternum, ribs, vertebrae and femur; the marrow from all these areas appeared relatively acellular, but had a pink color apparently due to hemorrhage. The marrow from the femur appeared grossly to contain considerable fat. The other organs appeared normal grossly.

The microscopic findings of chief interest, in addition to those which confirmed the petechial hemorrhages seen grossly, were in the bone marrow and lymph nodes. Touch preparations of vertebral and sternal marrow showed numerous fat droplets, many red blood cells and a very scanty number of nucleated cells which consisted chiefly of lymphocytes, plasma cells and mononuclear macrophages. Sections of bone marrow fixed with Zenker's acetic acid and stained with eosinmethylene blue stain, were quite similar in those sections taken from the vertebrae, ribs and sternal marrow; the spaces normally occupied by hematopoietic tissues were largely replaced by fat, with numerous red blood cells, and only a scattering of nucleated cells, consisting chiefly of lymphocytes and a few plasma cells and macrophages; a very rare nucleated red cell was present. In addition, there were a few fibrous tissue cells. In some sections, particularly from the sternal marrow the red cell infiltration was quite diffuse and had the appearance of hemorrhage. No megakaryocytes were identified. Sections of the femoral marrow were also quite acellular but with more fat replacement, and slightly less red cell infiltration. Sections of the lymph nodes showed them to be relatively atrophic, with some fat replacement in which the sinusoids stood out quite clearly. Some of the germinal follicle areas showed small zones of necrosis, with a small amount of neutrophil infiltration and some reticulo-endothelial cell and fibroblastic proliferation. Still other areas showed a small amount of fresh hemorrhage.

These post-mortem findings were considered characteristic of an aplastic anemia. There was nothing about these findings which would distinguish this case from a primary aplastic anemia but because of the clinical history it is believed that the prolonged

anti-histamine medication must be considered as a possible etiological factor.

DISCUSSION

Since the release of four formulas of the anti-histamine drugs for over-the-counter sale, the advertising people have had a hey-day and have skyrocketed the sale of these drugs for the alleged prevention or cure of the common cold. One company reports the sale of over 2 billion tablets in only four months.

All of these cases of agranulocytosis reported to date have been while the patient has been under a doctor's care. If the patient reported here had not developed thrombophlebitis it is quite possible that his blood counts might never have been done and he probably would have developed a fulminating pneumonia and died without our realizing that his total blood counts were low. It is impossible to know how many have done just this thing.

It has been our feeling that the anti-histamine drugs should be used only under a physician's supervision and that routine blood counts be done the same as we do when using sulfonamides, thiouracil, gold, etc.

SUMMARY AND CONCLUSION

A case of pancytopenia with death following the use of Neo-Antergan and Pyribenzamine cream is reported. This is believed to be the first such case report, although at least five non-fatal cases of agranulocytosis have been reported. It is felt that these drugs should be used only under the careful supervision of a physician.

I am indebted to Dr. Franklin F. Ferguson for his assistance and preparation of the pathological material for this paper.

BIBLIOGRAPHY

- (1) Schwartz, E.: Comparative Toxicity and Side Effects of the Anti-histaminic Drugs, *Annals of Allergy*, 5: No. 777 (Nov.-Dec.), 1949.
- (2) Clement, R., and Godlewski, S.: Agranulocytose aiguë curable apparue au cours du traitement d'un asthme par un antihistaminique de synthèse, *Bull. et Mém. Soc. Méd. d'hop de Paris*, 61:103 (March 2), 1945.
- (3) Blanton, W., and Owens, M.: Granulocytopenia due probably to Pyribenzamine, *J. A. M. A.*, 134:454 (May 31), 1947.
- (4) Cahan, A. M., Meilman, E., and Jacobson, B. M.: Agranulocytosis Following Pyribenzamine, *New England J. Med.*, 241:865-867 (Dec. 1), 1949.
- (5) Drake, T. G.: Agranulocytosis During Therapy with the Antihistaminic Agent Methaphenilene (Diatrin), *J. A. M. A.*, 142:477-8 (February 18), 1950.

FRACTURES OF THE FEMORAL NECK IN CHILDHOOD

ROBERT G. LIVINGSTONE, M. D., Cambridge, Mass.

The rarity of fractures of the femoral neck in childhood is suggested by the finding that less than 20 publications have been devoted to this subject. Yet, in spite of varying methods of treatment, such reported complications as malunion and aseptic necrosis of the femoral epiphysis or head have been relatively common, and with the consequent mechanical instability of the joint and accompanying arthritic changes serious degrees of disability have been the ultimate result. The management of these injuries is thus believed to be a matter of unusual responsibility and interest.

An experience with a patient which has led us to review the published records of this injury is described in the accompanying report.

CASE REPORT

T. P., a 13-year-old white schoolboy, was admitted to the hospital on December 16, 1944, an hour after he was struck and knocked down by an automobile. It was said that he had been unconscious several minutes as a result of this accident.

The details of the past and family history, which were obtained from the mother, were of no related interest.

At the time of entry the patient was alert and rational, but he had no recollection of the circumstances of his injury. There was a superficial laceration of the scalp, and there were multiple abrasions of the face and legs. Motion at the left hip joint was limited and painful. Marked tenderness was present in the region of the left greater trochanter. The left knee was swollen and painful. There was no shortening of the leg.

The results of routine laboratory studies, which included an examination of the cerebrospinal fluid, were considered to be within normal limits.

A diagnosis of concussion, laceration of the scalp, multiple contusions and abrasions, and probable fracture of the greater trochanter of the left femur was made. Initial treatment was concerned with the head injury, and appropriate symptomatic measures were outlined. For 3 days the patient was amnesic and restless, but thereafter his improvement in this respect was satisfactory and entirely uneventful.

A roentgenographic examination on December 21, 1944, revealed a complete fracture of the neck of the left femur. (Fig. 1) The fracture was at once reduced by traction and manipulation, and the leg was then immobilized, by means of a plaster spica, in wide abduction, slight inward rotation, slight hyperextension at the hip, and slight flexion at the knee.



FIGURE 1

Fracture of the femoral neck, 5 days after injury.

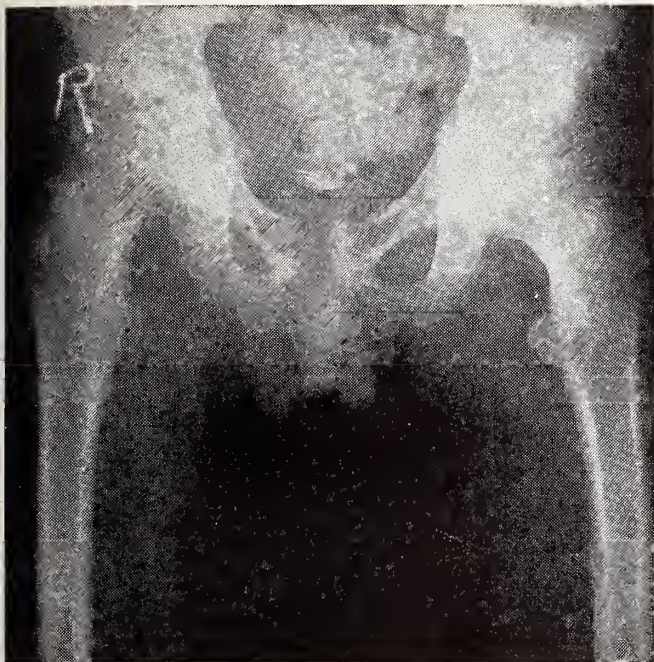
In February, 1945, a prolonged febrile reaction developed as a complication of routine scarlet fever immunization. An estimated weight loss of 15 pounds occurred within the next few weeks, and the spica soon became too loose to be effective. The patient was placed on a fracture table, to assure maintenance of the position of immobilization, and the spica was removed. When a roentgenographic examination demonstrated satisfactory alignment of the fragments, a new spica was applied.

The spica was removed after a total immobilization period of 3 months. A roentgenographic examination then showed excellent healing of the fracture, with no demonstrable abnormality of the femoral epiphysis or head. (Figs. 2 and 3)

Crutches were permitted, without weight-bearing, about 2 weeks later, and on April 12, 1945, the patient was sent home. Weight-bearing was begun 4 months from the date of injury. A roentgenographic examination on April 9, 1948, revealed a normal femoral neck, epiphysis, and head. (Fig. 4) At the present time, more than 5 years after the injury occurred, the patient is asymptomatic. He walks with a normal gait, he has no shortening of the leg, and he enjoys the unrestricted physical activities of schoolboy life.

COMMENT

Isolated cases of this fracture were described by Cromwell (1835), Hamilton and Smith (1891), Schultz-Rostock (1892), and Whitman (1893)



FIGURES 2 AND 3

The extent of healing after 3 months of immobilization.



FIGURE 4

The appearance of the femoral neck $3\frac{1}{2}$ years after fracture. No abnormality is apparent.

some years before the introduction (about 1897) of the roentgenogram in diagnosis, but many of these injuries on earlier occasions were undoubtedly regarded as instances of tuberculous infection of the hip or as fracture-separations of the femoral epiphysis. Subsequent accounts have included the reports of 30 additional cases by Whitman (1897, 1900, 1909), 1 case by Russell (1898), 2 cases by Telford (1913), 8 cases by Taylor (1917),

2 cases (one a museum specimen) by Bland-Sutton (1918), 3 cases by Greig (1919), 12 cases by Colonna (1928, 1929), 11 cases (in the 12 to 20-year-old group) by zur Verth (1935), 9 cases by Mitchell (1936), 1 case by Johansson (1940), 3 cases by Nielsen (1940), 10 cases by Wilson (1940), 12 cases (10 patients) by Carrell and Carrell (1941), and 2 cases by Blount, Schaefer, and Fox (1944). A series of approximately 110 fractures of this type, within a period of 60 years, is represented by these records.

Most of these fractures have resulted from the violent trauma met with in pedestrian accidents or in falls. Whitman (1893), has reported that this injury has occurred in forcible attempts to gain reduction of dislocations of the hip, and Taylor (1917), has attributed this fracture, in an infant, to the manipulations incident to breech extraction. Cases have also been cited where the apparent trauma has been relatively slight.

Little or no disability may be evident at first. The discovery of pain on motion, elevation of the greater trochanter, and adduction, external rotation, and slight shortening of the leg may first suggest the diagnosis. A clinical distinction between this injury and fracture or separation of the femoral epiphysis may be very difficult, but in the patient less than 10 years old, as Whitman (1909), and Colonna (1929), have observed, a separation of the epiphysis alone is probably impossible because of the thick cartilage at the upper end of the femur. The nature of the injury, however, is established by roentgenographic study. A fracture of the femoral neck may be com-

plete or incomplete; it may be subcapital, transcervical, cervicotrochanteric, or pertrochanteric. According to Taylor (1917), and to Carrell and Carrell (1941), the cervicotrochanteric type is the most common. In the present series, where the site of fracture had been clearly pointed out, the cervicotrochanteric type was noted in two-thirds of the cases.

The plan of treatment recommended by Whitman (1909), has often since been followed in the management of the earlier stages of this injury. With an assistant steadying the pelvis, and usually while the patient is under anesthesia, downward manual traction is exerted on both legs to correct the shortening, and upward pressure on the thigh is made to gain alignment of the fragments against the anterior border of the capsule. The legs are then abducted simultaneously. A plaster spica is applied to hold the injured leg in maximum abduction, with moderate hyperextension at the hip, inward rotation of the leg, and slight flexion at the knee. The immobilization is maintained for a period of 3 months.

In this technique it is important that reduction be achieved before abduction is begun, for with the execution of the latter maneuver the neck is swung in towards the acetabulum, the fragments being locked in the position they then lie by the tightening of the capsule.

A similar method of treatment had also been employed by Taylor (1917), Colonna (1928, 1929), and Johansson (1940), but because of difficulty in maintaining the reduction the use of continuous traction was found more satisfactory by Böhler (1935), Mitchell (1936), and Carrell and Carrell (1941). The recommended period of immobilization has varied from 6 to 8 weeks or more, but prolonged delay in the resumption of weight-bearing has invariably been enjoined. When reduction was not readily achieved, traction was advised by Whitman (1909), and in such cases also tenotomy of the adductor muscles was suggested by Carrell and Carrell (1941). Other initial measures, such as internal fixation by means of nails or pins, have been used exceptionally.

Evidence of the effectiveness of these measures in the earlier stages of this injury is not lacking. Colonna (1928, 1929), has reported good results in 6 patients who were treated by the Whitman method. Mitchell (1936), described a good result in 1 case after treatment by abduction. Carrell and Carrell (1941), have also cited good results after abduction in 2 cases, nail fixation in 1 case, and abduction with traction in 4 cases. The majority of patients with this fracture had, however, apparently been seen too late for adequate initial treatment.

The occurrence of complications has been relatively common. Aseptic necrosis of the femoral epiphysis or head has been reported by zur Verth

(1935), in 4 of 10 collected cases, by Johansson (1940), in 2 cases, and by Carrell and Carrell (1941), in one-third of the cases they have studied. An end-result suggestive of Legg-Calvé-Perthes' disease was also described by Nielsen (1940), in 3 cases. Other reference has been made to failure to maintain reduction, to subsequent deformity and shortening, and to various diseases of the non-osseous tissues. In the present series, where adequate accounts have been provided, such complications have been noted in 35 of 60 cases.

An explanation for the prevalence of aseptic necrosis is suggested by the findings of Wolcott (1937), in his investigations of the blood supply of the head and neck of the femur. By means of injections of a radio-opaque material he has demonstrated interesting differences in the vascular anastomotic pattern in the hips of adults and of children. The vessels in the adult pierce the capsule in two groups, each with three or four branches, on the postero-superior and postero-inferior aspects of the cervicotrochanteric junction. Advancing through the loose capsular tissue they enter obliquely at the base of the head of the femur, anastomosing then with branches of the nutrient and ligamentum teres vessels. In 20 per cent of the adult hips the vessel of the ligamentum teres is absent; in the hips of all children it is not patent beyond the fovea until the nucleus of the head has been well formed, usually between the ages of 11 and 13 years. Fractures of the femoral neck in childhood are thus particularly likely to imperil the available blood supply.

Nonunion being rare, treatment in the later stages of this injury has usually been concerned with the correction of deformity and with the prevention of subsequent disabling changes. Subtrochanteric osteotomy has been advised by Whitman (1909), Mitchell (1936), and Carrell and Carrell (1941), and this measure has apparently been found to be a very useful one. Such other operative procedures as bone grafting, internal fixation by means of nails or pins, or reconstruction of the hip have occasionally been employed, but the results which are described have failed to justify these measures.

The existence of such hazards with these fractures has emphasized the need for careful management of each case. Initial treatment by abduction, or by abduction and traction, is therefore thought advisable in the earlier stages of this injury. Manipulative effort should be limited and gentle; internal fixation, with its risk of damage to epiphysis or blood supply, should be used exceptionally. An adequate immobilization period, of 6 to 12 weeks or more, should invariably be assured; the resumption of weight-bearing should be delayed 3 months or longer. Where deformity occurs, persisting for at least 4 weeks, a subtrochanteric osteotomy is an appropriate

ate corrective measure. Adherence to this plan of treatment is thought most likely at this time to assure improved results.

SUMMARY

Fractures of the femoral neck in childhood are unusual injuries which have commonly been followed by such complications as malunion, aseptic necrosis of the femoral epiphysis or head, and degenerative changes in the hip joint.

An experience with a recent patient is described, and a review of the published records of this injury is given.

Treatment by abduction, or by abduction and traction, is recommended when this fracture is recent, with emphasis upon prolonged delay in the resumption of weight-bearing. A subtrochanteric osteotomy is suggested in those cases where deformity is persistent.

REFERENCES

1. Bland-Sutton, J.: *Spolia opima*. Brit. M. J., 2:593-597, 1918.
2. Blount, W. P., Schaefer, A. A., and Fox, G. W.: Fractures of the femur in children. Southern M. J., 37:481-493, 1944.
3. Böhler, L.: *The Treatment of Fractures*, 4th English edition, translated from the 4th German edition by E. W. Hey Groves, Baltimore. William Wood & Company, 1935, p. 323.
4. Carrell, B., and Carrell, W. B.: Fractures in the neck of the femur in children with particular reference to aseptic necrosis. J. Bone and Joint Surg., 23:225-239, 1941.
5. Colonna, P. C.: Fracture of the neck of the femur in childhood. Ann. Surg., 88:902-907, 1928.
6. Colonna, P. C.: Fracture of the neck of the femur in children. Am. J. Surg., 6:793-797, 1929.
7. Cromwell, B. M.: A case of intracapsular fracture of the neck of the femur in a young subject. North Carolina M. J., 15:309-313, 1885.
8. Greig, D. M.: Fracture of the cervix femoris in children. Edinburgh M. J., 22:75-78, 1919.
9. Hamilton, F. H., and Smith, S.: *A Practical Treatise on Fractures and Dislocations*, edition 8. Philadelphia, Lea Brothers & Company, 1891, p. 369.
10. Johansson, S.: Über Epiphysennekrose bei geheilten Collumfrakturen. Zentralbl. f. Chir., 54:2214-2222, 1927.
11. Mitchell, J. I.: Fracture of the neck of the femur in children. J. A. M. A., 107:1603-1606, 1936.
12. Nielsen, B.: Calvé-Perthes' disease after fracture of neck of femur in young persons and its significance for understanding of pathogenesis of aseptic necroses of epiphyses. Hospital std., 81:773-788, 1939.
13. Russell, R. H.: A clinical lecture on fracture of the neck of the femur in childhood. Lancet, 2:125-126, 1898.
14. Schultz-Rostock, J.: Zur Casuistik der Verbregungen des Schenkelhalses. Ztschr. f. orthoped. Chir., 1:55-79, 1892.
15. Taylor, H. L.: Fractures of the neck of the femur in children. New York State J. Med., 17:508-511, 1917.
16. Telford, E. D.: On the latency of symptoms in fracture of the neck of the femur in adolescents. Clinical J. (London), 42:348-350, 1913.
17. Whitman, R.: Further observations on depression of the neck of the femur in early life, including fracture of the neck of the femur, separation of the epiphysis and simple coxa vara. Ann. Surg., 31:145-162, 1900.
18. Whitman, R.: Further observations on fracture of the neck of the femur in childhood, with especial reference to its diagnosis and to its more remote results. Ann. Surg., 25:673-686, 1897.
19. Whitman, R.: Further observations on injuries of the neck of the femur in early life; with reference to the distinction between fracture of the neck and epiphyseal disjunction as influencing positive treatment. Med. Rec., 75:1-8, 1909.
20. Whitman, R.: Observations on fracture of the neck of the femur in childhood, with special reference to treatment and differential diagnosis from separation of the epiphysis. Med. Rec., 43:227-230, 1893.
21. Wilson, J. C.: Fractures of the neck of the femur in childhood. J. Bone and Joint Surg., 22:531-546, 1940.
22. Wolcott, W. E.: A study of the blood supply of the head and neck of the femur in children. Read before the American Academy of Orthopaedic Surgeons, Cleveland, Ohio, January 13, 1937. Cited by Carrell and Carrell.
23. zur Verth, M.: Sekundäre Nekrose des Schenkelkopfes nach. Schenkelhalsbrüchen Jugendlicher. Zentralbl. f. Chir., 62:2549-2557, 1935.

CLINICAL EXPERIENCE WITH CHLOR-TRIMETON*

IRVING W. SCHILLER, M. D., FRANCIS C. LOWELL, M. D., and WILLIAM FRANKLIN, M. D.

The recent studies of the pituitary adrenocorticotrophic hormone and certain of the adrenal cortical steroids have shown that they may be of unexcelled value in the treatment of certain of the severe hypersensitive state.¹⁻³ Until more is known of the mechanism by which these hormones operate, and we have more understanding of their eventual effects, it is not likely that they will replace the well-established methods directed against specific allergens or the use

of the antihistaminic drugs, in the day to day management of allergic disease. It is well known that the antihistaminic drugs are prone to produce a number of unpleasant side reactions of which drowsiness is most commonly encountered. In addition, the number of reports of more serious reactions⁴⁻¹² with the use of these drugs is increasing so that further efforts to produce more effective and less toxic compounds seem warranted. Furthermore, because of the great individual variation among patients regarding the action of drugs, there is an advantage in having a number available with similar, but not identical properties, from which to choose.

From the Allergy Clinic, Robert Dawson Evans Memorial Hospital, Massachusetts Memorial Hospitals, and the Department of Medicine, Boston University School of Medicine, Boston, Massachusetts.

Tislow and his associates¹³ have shown, in animal experiments, that the chlorination of trimeton resulted in a twenty-fold increase in antihistaminic activity without any appreciable changes in relative toxicity. In contrast, they noted that the halogenation products of benadryl, pyribenzamine and thenylene showed no such marked increase in activity. The halogenation product of trimeton differs from the parent substance trimeton only in respect to the presence of chlorine in the para position on the benzene ring. This compound, known as chlor-trimeton,† is 1-(P-chlorophenyl)-1-(2-pyridyl)-3-N, N-dimethyl-propylamine.

The pharmacological and preliminary clinical data indicated that the effective oral dose of chlor-trimeton was in the range of 2-4 mgs. and that the duration of activity was protracted when compared to other available antihistaminic drugs. Should clinical experience support the above data, chlor-trimeton would occupy an unique position in the field of histamine-antagonizing agents.

The present study covers the period from June, 1949, to December, 1950. The results and impressions of a clinical study of this type are reported despite the inadequacies, to be mentioned in the discussion below.

Chlor-trimeton was made available as scored tablets containing 2 mgs. or 4 mgs. The dose used was 1 to 4 mgs. by mouth, taken as often as required for relief of symptoms. A total of 153 patients was treated (57 males; 79 females) with ages from 3 to 55 years. The majority were undergoing injection therapy with specific allergens and chlor-trimeton was prescribed in addition when symptoms occurred. Each patient was observed and questioned over a period of weeks or months and was instructed to report in detail all effects noted. The results were

† Kindly supplied by the Schering Corporation, Bloomfield, N. J.

grouped as follows: excellent, if complete relief of symptoms occurred and lasted for several hours; partial, if relief was 50% or more and lasted two or more hours; and no relief, when there was less than 50% relief or the duration of activity was short. Relief or symptoms in most cases, when it occurred, required 30 to 45 minutes and the duration of relief varied from two hours to as long as twelve or more hours.

As shown in Table I, of 100 patients with hay fever, 84 reported excellent or partial relief. Of 20 patients with perennial allergic rhinitis, 15 (75%) also had excellent or partial relief. Likewise, effective control of symptoms was seen in 12 of the 15 patients with urticaria. The patients with hay fever complicated by seasonal asthma and the subjects with perennial bronchial asthma made the poorest showing. The majority of the subjects who obtained relief with chlor-trimeton required about 4 mgs. morning and night. The patients with hay fever, in most instances, used the drug almost daily over a period of 3 to 6 weeks, and those with allergic rhinitis of the chronic variety used the drug in varying amounts for 6 or more months. A few patients required doses of 4 mgs. three or four times a day for short periods and tolerated this amount without difficulty.

There were 8 patients who had used pyribenzamine prior to the administration of chlor-trimeton. Of these 8, 4 preferred pyribenzamine, 3 preferred chlor-trimeton and one expressed no preference. In 13 patients who used both trimeton and chlor-trimeton, 5 had a preference for the first and 3 preferred the second, and in the remaining 5 cases there was no advantage in one drug over the other.

Of the 153 patients who used chlor-trimeton, 134 (87%) were free from side effects. The reactions in the remaining 19 (13%) were not serious and were easily controlled by decreasing the dose, or in the rare case, discontinuing the antihistaminic ther-

TABLE I
THERAPEUTIC RESPONSE TO CHLOR-TRIMETON

Diagnosis	Total Cases	Excellent Relief	Partial Relief	No Relief
		No. of Cases	No. of Cases	No. of Cases
Hay Fever	100	39	45	16
Allergic Rhinitis Perennial	20	7	8	5
Hay Fever and Seasonal Bronchial Asthma	6	2	0	4
Bronchial Asthma Perennial	12	2	2	8
Urticaria	15	9	3	3
Total	153	59	58	36

apy. This percentage of untoward effects is noteworthy and is much lower than that reported for most antihistaminic drugs. The side effects were chiefly drowsiness (12 cases), headache (4 cases) and (in one case each) dry throat, nausea and dizziness.

The reliability of a clinical study of the kind reported here is difficult to assess for such well-known reasons as the tendency of the physician and patient to be biased in their judgement in favor (or sometimes against) a new preparation. We feel that on the basis of this and previous studies of a similar nature, the attempt of the physician to be objective in the interpretation of what he sees and what he elicits from his patient is never completely successful and never can be. This will influence the results as long as the physician is in a position to know what the patient is receiving and when. We do not feel that the mere use of placebo is sufficient as it controls only one-half of the difficulty. To meet this problem, the coöperation of several people and careful organization are required. So far as we know, this has only been achieved in a few instances. A recent example of initial enthusiasm unsupported by the collection of data under carefully controlled conditions, is the use of the antihistaminic drugs in the treatment of the common cold.¹⁴⁻¹⁶

Though this study may be criticized for failing to take much of the above into account, we feel that certain conclusions are warranted concerning the value of chlor-trimeton in the management of allergic conditions. The drug appears to be a useful agent in the symptomatic treatment of hay fever, perennial allergic rhinitis and urticaria. Chlor-trimeton compared well with pyribenzamine and trimeton, drugs with which we have had considerable experience.¹⁷⁻¹⁸

The results in bronchial asthma, though disappointing, were not unexpected and are in accord with the experience with other antihistaminic drugs. Despite the slower action of chlor-trimeton, requiring 30-45 minutes to act, it was apparent that the drug was unique among those available at the time, in the unusually long period of relief afforded many of the patients. This effect is of considerable interest in view of the small dose requirement of the drug. It has been suggested by Gilman¹⁹ that the two properties, long activity and low dosage, may be related. He attributes these features to the stability of chlor-trimeton resulting in its slow inactivation in the body. He suggests that the blood levels are as high with small doses of chlor-trimeton as they are with larger doses of the other antihistaminics. The disadvantages of a long action drug which is also potentially toxic, should be kept in mind. Nevertheless, concern for the possible cumulative effects of chlor-trimeton would appear to be unwarranted in the light of our clinical observations.

SUMMARY

Chlor-trimeton, 1-P-chlorophenyl)-1-(2-pyridyl)-3-N, N-dimethyl-propylamine, an antihistaminic drug, was subjected to clinical trial in 153 patients with one or more allergic conditions. The majority of these patients were under observation for many months. The drug appeared to be effective in relieving the symptoms of hay fever, perennial allergic rhinitis and urticaria. It was unsatisfactory in the treatment of bronchial asthma. The preliminary pharmacologic data which suggested high potency, increased duration of activity and low toxicity, appears to be confirmed by this evaluation. The side reactions encountered in 19 of the 153 patients were mild and easily controlled.

REFERENCES

1. Bordley, J. E., Carey, R. A., Harvey, A. M., Howard, J. E., Kattus, A. A., Newman, E. V., and Winkenwerder, W. L.: Preliminary Observations on the Effect of Adrenocorticotrophic Hormone (ACTH) in Allergic Diseases. *Bull. Johns Hopkins Hosp.*, 85:396-398, 1949.
2. Rose, B., Pare, J. A. P., Pump, K., and Hanford, R. C.: Preliminary Report of Adrenocorticotrophic Hormone (ACTH) in Asthma. *Canad. M. A. J.*, 62:6, 1950.
3. Franklin, W., Lowell, F. C., Schiller, I. W., and Beale, H. D.: Clinical and Experimental Studies with Cortisone by Mouth, Cortisone by Injection and ACTH in the Treatment of Asthma. Presented at the Meeting of the American Academy of Allergy, New York City, Feb. 7, 1951.
4. Blanton, W. B., and Owens, M. E. B., Jr.: Granulocytopenia Due Probably to "Pyribenzamine." *J. A. M. A.*, 134:454, 1947.
5. Geiger, J., Rosenfield, S. Z., and Hartman, D. L.: Unusual Reaction Following Benadryl Administration. *J. A. M. A.*, 133:392, 1947.
6. Schwartzberg, S., and Wilkerson, D.: Prolonged Reaction to Benadryl. *J. A. M. A.*, 133:393, 1947.
7. Blackman, N. S., and Hayes, J. C.: Fatality Associated with Benadryl Therapy. *J. Allergy*, 19:390-392, 1948.
8. Rives, H. F., Ward, B. B., and Hicks, M. L.: A Fatal Reaction to Methapyrilene (Thenylene). *J. A. M. A.*, 140:1022-1024, 1949.
9. Cohan, A. M., Meilman, E., and Jacobson, B. M.: Agranulocytosis Following Pyribenzamine. Report of a Case. *New Eng. J. Med.*, 241:865, 1949.
10. Martland, H. S., and Guck, J. K.: Agranulocytosis after Antihistaminic Therapy: Report of a Case Following the Prolonged Use of Tripeleminamine (Pyribenzamine) (Hydrochloride). *J. A. M. A.*, 143:742, 1950.
11. Hilker, A. W.: Agranulocytosis from Tripeleminamine (Pyribenzamine) Hydrochloride. *J. A. M. A.*, 143:741, 1950.
12. Crumbley, J. J., Jr.: Anemia Following Use of Antihistaminic Drugs. *J. A. M. A.*, 143:726, 1950.
13. Tislow, R., et al.: Pharmacological Evaluation of Trimeton, 1-Phenyl-1-(2-pyridyl)-3-N, N-dimethyl-propylamine, and Chlor-Trimeton, 1-(p-chlorophenyl)-1-(2-pyridyl)-3-N, N-dimethylpropylamine. *Federation Proceedings*, Vol. 8, No. 1, Marc, 1949.
14. Feller, A. E., et al.: The Failure of Antihistaminic Drugs to Prevent or Cure the Common Cold and Undifferentiated Respiratory Diseases. *New Eng. J. Med.*, 242:737-744, 1950.

Continued on page 110

USE OF PREGNENOLONE IN RHEUMATOID ARTHRITIS

J. GRAHAM BRUCE, M. D.*

With the knowledge of the effectiveness¹ of cortisone and pituitary adrenocorticotrophic hormone in the treatment of rheumatoid arthritis and because of the scarcity and high cost of these materials,² a search for other adrenal steroids for use in this disease was begun. One of these steroids,⁵—pregnenolone, was reported to have a mild effect on ankylosing spondylitis by Davison and Koets³ in 1949. Other authors⁴ have recently reported "striking relief" in fifty per cent of thirty patients using a daily dose of 500 mgm. of the drug, but none of the patients showed a Grade I response (remission of disease) as is generally seen with the use of pituitary adrenocorticotrophic hormone or cortisone.⁵ Ishmael⁶ and his group have reported that pregnenolone acetate is an effective treatment for rheumatoid arthritis. It was used alone and in combination with testosterone propionate. The combination was considered to be more effective than when used alone.

Recently, Guest, Cecil, et al.⁷ treated nineteen patients with pregnenolone and obtained subjective and objective improvement in one case. This case was rheumatoid spondylitis, and despite the improvement, the elevated sedimentation rate was not lowered by the drug.

The following is a clinical study of six patients treated with pregnenolone. The dose given was, in most instances, 500 mgm. daily of which 100 or 200 mgm. were administered intramuscularly and the remainder orally. The medication was continued for one to eight weeks. All six cases had subjective and objective evidence of rheumatoid arthritis, and they had previously been followed for periods from a few weeks to several years.

CASE I

This female, aged seventy-three, suffered from polyarticular arthritis of eight years' duration. There was involvement of the small fingers and knee joint. Cardiomegaly and basal rales were present. The sedimentation rate was 63 mm. (Westergren).

On April 2, 1950, she was started on pregnenolone 500 mgm. per day and pregnenolone acetate 100 mgm. intramuscularly. On the following day, she was much improved symptomatically. On April 29, 1950, the right wrist was 1 cm. larger in diameter than the left, and the right knee was 1.5 cm. larger than the left. At this point, the patient presented

frank signs of congestive failure. She was digitalized and given a low sodium diet.

While under treatment with pregnenolone, the arthritis spread to the right shoulder joint.

On May 10, 1950, pregnenolone was discontinued because of progressive cardiac failure. This improved with morphine, bed rest, a low sodium diet, and ammonium chloride. After three weeks of therapy with pregnenolone, the arthritis was objectively unimproved and the sedimentation rate remained elevated (53).

CASE II

This female, aged seventy-two, had had rheumatoid arthritis for twelve years. Both wrists and knees were swollen, painful, and limited in motion. The shoulders and all of the small joints of the fingers were involved. There were subcutaneous nodules at the olecranons, wrists, and fingers. The sedimentation rate varied between 30 mm. and 58 mm. (Westergren). On April 24, 1950, she was started on pregnenolone 200 mgm. intramuscularly in two divided doses plus 400 mgm. by mouth daily. Injections were stopped on June 15, 1950, and oral tablets were gradually reduced in dosage and discontinued on July 15, 1950.

During the period of treatment, the circumference of the left wrist, which was 15.5 cm. at the start, became 16.8 cm. The left knee and the right knee at the start were 36.5 cm. and 36.5 cm. in circumference. At the end of treatment they were 34.5 cm. and 35.0 cm., respectively. The patient felt that her knees were better but that her wrists and fingers were more painful and stiff. The sedimentation rate remained elevated.

CASE III

This female, aged seventy, had rheumatoid arthritis for four months, involving both shoulders and proximal phalanges with typical swelling, pain, and tenderness. On March 18, 1950, after a trial of conservative therapy, during which sedimentation rates were 56 and 64 (Westergren), she was started on pregnenolone 400 mgm. by mouth and 100 mgm. intramuscularly daily. When medication was stopped on April 22, the left third, fourth, and fifth metacarpophalangeals were red, hot, and swollen. Sedimentation rate was 38 mm. (Westergren).

CASE IV

This female, aged fifty-six, had suffered from arthritis for fourteen years. Finger joints presented

* Assistant Visiting Physician, The Springfield Hospital. Out-Patient Physician in Charge of Arthritis Clinic, The Springfield Hospital. Visiting Physician, Springfield Municipal Hospital.

typical fusiform swellings, trophic disturbances, and deformities with several ankylosed joints. Both knees and ankles were warm, swollen, and painful. There were flexion contractures of the knees and elbows.

Pregnenolone was started on April 27, 1950. Sedimentation rate on this date was 88 mm. (Wester-

gren). Hemoglobin was 10.6 grams. On May 5, 1950, there was subjective improvement but on May 16, 1950, joint pain was increased. On June 3, 1950, joints were much more painful and medication was discontinued. Following this, the patient stated that she had four days of relief from pain, only to have symptoms recur.

	4/27/50	5/16/50	5/25/50	6/16/50
Diameter Right Wrist	15.0 cm.	14.5		15.0
Diameter Left Wrist	14.8	14.5		14.7
Diameter Right Knee	35.5	34.8		33.5
Diameter Left Knee	35.0	33.5		33.0
Diameter Right Ankle	26.5	25.5		26.0
Diameter Left Ankle	26.0	26.0		25.5
Sedimentation Rate	88 mm. (Westergren)		75 mm.	30 mm.
Hemoglobin	10.6 g.			10.6 g.
Metatarsophalangeal Joints	Tender	Tender		Tender

CASE V

A single female, aged fifty-four, employed as a personnel manager, had suffered with rheumatoid arthritis, slowly progressive for ten years. She had typical fusiform swellings of the proximal phalangeal joints. There were pain and swelling in the second and third metacarpals, both wrists, and both knees, and a rheumatic nodule near the proximal phalangeal joint of the right index finger. She was started on pregnenolone on March 30, 1950, 100 mgm. b.i.d. intramuscularly and 100 mgm. t.i.d. by mouth. This was continued until May 19, 1950, with no change in symptoms. Both wrists measured 16.5 cm. in diameter both during and on re-check on June 3, 1950 (two weeks after pregnenolone was stopped). At this time her right second metacarpal phalangeal joint was beginning to subluxate, suggesting that the disease was still progressing. Sedimentation rates during treatment were 23, 26, 24, and 29 mm. (Westergren).

CASE VI

A fifty-year-old housewife experienced rheumatic pains for sixteen years. Recently both elbows and wrists had become swollen and tender. She also

complained of swelling about both knees. The sedimentation rate at the start of pregnenolone treatment on March 28, 1950, was 42 mm. (Westergren). She took 400 mgm. per day until April 14, 1950, and stated that she noticed improvement beginning April 21, 1950. On April 23, 1950, she was started again on the medication, and on May 8, 1950, it was increased to 500 mgm. daily. On May 15, 1950, there was no subjective improvement and the medication was stopped on May 20, 1950. The sedimentation rate continued elevated and she showed progression of her disease into both ankles and into the metatarsophalangeal joints.

TOXICITY

It has been stressed previously that there are no toxic effects from pregnenolone. However, the pharmaceutical houses that promote its sale warn the physician not to use it for more than sixty days.

In this study, one patient (Case V) could not continue the intramuscular injections because of the marked reaction at the injection site, either inflammatory or allergic in nature. Another patient (Case I) developed congestive failure during therapy due possibly to retention of sodium and water.

RESULTS
TABLE I

		Stage	Class	Duration of Disease	Degree of Improvement
Case I	K-	Stage II	Class II	4 months	Grade IV
Case II	B-	Stage III	Class III	12 years	Grade III
Case III	McC-	Stage I	Class II	2½ months	Grade IV
Case IV	Du-	Stage IV	Class IV	14 years	Grade IV
Case V	Do-	Stage III	Class II	10 years	Grade IV
Case VI	T-	Stage II	Class II	20 years	Grade IV

COMMENT

In Table I, the cases are classified, as suggested by The American Rheumatism Association, according to the stage of the disease, Stage I being very early and Stage IV indicating far advanced arthritis. The class indicates functional activity, i.e. Class I (works as usual) and Class IV (bed to chair existence). The degree of improvement was graded according to criteria of the American Rheumatism Association and published by Steinbrocker⁸ (Grade I to Grade IV).

There were no Grade I or II results, indicating remission or major improvement. Temporarily, one patient possibly had a Grade III response (minor improvement) but this case at the present writing (four months later) shows no change in the progression and activity of the disease.

Sedimentation rates were not materially affected by the treatment. Anemia, if it was present, did not improve, as is seen when ACTH or cortisone are used.⁵ It is felt that comparable or even better results can be obtained by simple medical or orthopedic measures as advocated by Bauer and Short.⁹ It is well known that rheumatoid arthritis has spontaneous exacerbations and remissions. Considering the expense of pregnenolone and the consistent lack of effectiveness here observed, this drug cannot be recommended as a reliable therapeutic agent in rheumatoid arthritis. It would seem also, that the drug is not entirely without toxicity and therefore should

not be given unless the patient is under close medical supervision.

BIBLIOGRAPHY

1. Hench, P. S., Kendall, E. C., Slocumb, C. H., and Polley, H. F.: Effect of Hormone of Adrenal Cortex (17-Hydroxy-11-Dehydrocorticosterone: Compound E) and of Pituitary Adrenocorticotrophic Hormone on Rheumatoid Arthritis, Proc. Staff Meeting, Mayo Clinic, 24:181, 1949.
2. Thorn, G. W., Bayles, T. B., Massell, B. F., Forsham, P. N., Hill, S. R., Smith, S., and Warren, J. E.: Studies on the Relation of Pituitary Adrenal Function to Rheumatic Disease, New Eng. J. of Med., 24:529, 1949.
3. Davison, R., and Koets, P.: Progress in Treatment of Rheumatic Disorders: International Congress of Rheumatology, British Medical Journal, 2:154, 1949.
4. Freeman, H., Pincus, C., Johnson, C. W., Bachrach, S., McCabe, G. E., and MacGilpin, H.: Therapeutic Efficacy of⁵ Pregnenolone in Rheumatoid Arthritis, J. A. M. A., 142:15, p. 1124, 1950.
5. Thorn, G. W., Forsham, P. H., Frawley, T. F., Hill, S. P., Jr., Roche, M., Staehelin, D., and Wilson, D. L.: Medical Progress: The Clinical Usefulness of ACTH and Cortisone, New Eng. J. of Med., 242:21, p. 824, 1950.
6. Ishmael, W. K., Hellbaum, A., Kuhn, J. F., and Duffy, J.: The Effects of Certain Steroid Compounds on Various Manifestations of Rheumatoid Arthritis, Journal Oklahoma Medical Association, 42:10-434, 1949 (Oct. 10).
7. Guest, C. M., Cecil, R. L., Kammerer, W. H., and Berson, S. A.: Epinephrine, Prgenenolone and Testosterone in the Treatment of Rheumatoid Arthritis J. A. M. A., 143:4, May 27, 1950.
8. Steinbrocker, C., Traeger, C. H., and Batterman, R. C.: Therapeutic Criteria in Rheumatoid Arthritis, J. A. M. A., 140:659, June 25, 1949.
9. Short, C., and Bauer, W.: Course of Rheumatoid Arthritis in Series of Patients Receiving Simple Medical and Orthopedic Measures, New Eng. J. of Med., 238:142, 1948.

BACTERIAL NASAL ALLERGY

A. L. MAIETTA, M. D.*

In the past, bacterial nasal allergy has received insufficient diagnostic attention and frequently has been classified as chronic infection. Its treatment, oftentimes producing unsatisfactory results, extends from the administration of some decongestant nasal solution, which encourages self-medication, to rather radical and perhaps unnecessary intranasal surgery. The purpose of this paper is to demonstrate the important etiologic relationship of bacterial nasal allergy to perennial allergic coryza and to present a regimen of closely integrated conservative therapeutic measures which, when properly applied, will insure gratifying results.

Bacterial nasal allergy is the most important cause of perennial allergic coryza. In a study of 200 cases, it was the sole causative factor in 46 patients (23%) and a complicating or secondary factor to other aller-

gens (inhalants and/or ingestants) in 153 patients (76.5%). Only 1 case (0.5%) of inhalant allergy remained uncomplicated. Thus, the incidence of bacterial nasal allergy as a causative factor in perennial allergic coryza is phenomenally high.

Bacterial nasal allergy is intrinsic in its origin and results from endogenous activity of bacterial antigens directly upon the nasal mucosa. Locally, the allergic reaction probably depends upon the formation of a bacterial hapten, based upon the principle of the Burky¹ phenomenon, which subsequently shocks the nasal mucosa after being originally sensitized by some pathogenic organism.

SYMPTOMATOLOGY

The condition has a nonseasonal incidence. It occurs as a primary sensitivity when no other allergenic excitants are demonstrable. Patients present a history of frequent bouts of upper respiratory infection.

* Chief of the Allergy Clinic, Carney Hospital, Boston, Massachusetts.

Characteristically, each acute episode is markedly prolonged with a residual rhinorrhea being left in its wake. As the attacks become more frequent and prolonged, they merge into each other. At this stage, a fresh exacerbation usually superimposes itself upon a receding one and the patient complains of a year-round-head-cold. As a secondary and complicating factor, bacterial haptens appear to possess a strong affinity for the nasal mucosa and find a fertile field in a tissue already shocked by extrinsic allergens (inhalants or ingestants). Out of 154 cases of perennial allergic coryza demonstrating extrinsic allergens as the primary cause, 153 (99.3%) subsequently were complicated by bacterial nasal allergy.

Rhinorrhea of the thin watery type, postnasal drip, bilateral or alternately unilateral nasal obstruction, sneezing especially in the morning, slight itching of the nasal mucosa, low grade frontal headache, nasal voice, and, occasionally, a diminution in the acuity of the sense of smell are characteristic. In addition, mild constitutional symptoms are invariably present consisting of an impaired appetite, lassitude, and an off-color complexion.

In uncomplicated cases prior to the onset of local bacterial sensitivity, the classical pale, grayish-blue membrane was noted. However, with the advent of local bacterial sensitization, the nasal mucous membrane assumed a deep red color. This is not an irreversible reaction. With proper treatment, the normal color usually can be restored.

Repeated cytologic studies of the nasal discharge usually reveal a preponderance of eosinophilic cells (Hansel).² These, oftentimes, are found in clumps. At the height of a fresh exacerbation, they are replaced by neutrophils but, as the acute infectious process subsides, eosinophiles again may be observed in increasing numbers.

Locally, the complications are edematous turbinates, nasal polyps, and inadequate drainage. Nasal polyps were noted in 51 patients (25.5%). Bronchial asthma is the most important and distressing complication. In 73 patients (36.5%), bacterial nasal allergy preceded the appearance of bronchial asthma. In another group of 48 patients (24%), it was associated with bronchial asthma as a secondary allergic manifestation. Thus, 121 patients (60.5%) demonstrated the close allergic relationship existing between bacterial nasal allergy and bronchial asthma.

As a diagnostic aid skin tests are important. According to Rackemann³ skin tests with bacterial products are of 2 types:—the specific carbohydrate gives an immediate reaction, the protein causes a late reaction. Positive tests of either kind indicate that the patient has had previous experience with that organism, or at least with some closely related organism, and this experience often occurred 10 or 15 years ago. Skin tests with other allergens (pollens, house

dust, foods, molds, etc.) are invaluable. They serve to establish primary or intercurrent sensitivities to which the patient exhibits a clinical manifestation.

TREATMENT

Avoidance of catalytic factors is essential. Fumes, pungent odors, smoke and non-specific dusts aggravate the symptoms. Smoking is deleterious. The home, especially the bedroom, should be dust free. Inclement weather and sudden changes in temperature must be guarded against. Attacks of upper respiratory infection must be prevented as much as possible. Restful sleep, at least 8 hours nightly, should be obtained.

Intranasal aerosol therapy was distinctly beneficial. A solution containing 4 mms. (approximately 12,500 units) of crystalline sodium penicillin G (50,000 units per c.c.) and 4 mms. of either a 1% isotonic solution of neo-synephrine hydrochloride or of epinephrine 1:1000 was aerosolized intranasally daily, every 2nd or 3rd day, or weekly depending upon the severity of the symptoms. Patients found this treatment most gratifying. About 6 to 8 intranasal aerosolizations usually sufficed. Oftentimes, a dramatic amelioration was obtained after only 1 or 2 treatments. In more than 1200 aerosol exposures not a single penicillin reaction was observed.

Vaccine therapy was employed routinely on all the patients. A stock vaccine containing the following organisms, *Micrococcus Catarrhalis*, *Bacillus Friedlander*, *Pneumococcus* (Types I, II, and III), *Streptococcus* (Hemolyticus and Viridans), *Staphylococcus Albus* and *Staphylococcus Aureus*, each in concentrations of 200 millions organisms per c.c., was given.

Preliminary doses were given at weekly intervals. Small injections were administered intradermally, larger ones subcutaneously. The initial dose was 0.05 c.c., the second 0.1 c.c., the third 0.2 c.c., the fourth 0.3 c.c., the fifth 0.4 c.c., the sixth 0.5 c.c. The latter was repeated weekly until the symptoms were well controlled before proceeding to the seventh dose 0.75 c.c. and the eighth 1.0 c.c. The 1.0 c.c. dose (stimulating dose) was repeated at monthly intervals indefinitely. With vaccine therapy a spectacular improvement was often noted early in the treatment.

When clinical sensitivity existed to other allergens (pollens, house dust, animal dander, molds, etc.) specific desensitization was not neglected. It was carried out in the usual manner with progressively increasing doses, as tolerated, until protection against exposure to an ordinary amount of the offending allergen was established. In food sensitivity, the offending foods were eliminated from the diet and, when deemed advisable, desensitization was at-

PLANNING — A MUST IN TODAY'S HOSPITAL NURSING SERVICE*

DONALD M. ROSENBERGER, Director, Maine General Hospital, Portland, Maine

It is the function of hospital administration in the field of nursing to constantly improve both the human relationships and the technical requirements of patient care and to establish and maintain proper balances between nursing service and nursing education on the one hand and general nursing and highly specialized administrative nursing on the other hand. In many respects the hospital must exert a positive force in the growing complexity of medical developments and nursing service.

From a practical standpoint, nursing problems considered by the hospital administration cannot be limited to long-range planning. The director of nursing service and the administrator of the hospital, whether they be two separate persons or one and the same individual, must face daily the routine tasks of organization and administration of the nursing service of the hospital both internally and in community relationships. If there is a school of nursing, the director of nursing must, in collaboration with the educational director of the school, meet problems related to classroom instruction and clinical experience in the education of students.

The hospital administration in the full discharge of its responsibilities must encourage, assist and support the nursing service in such every day items as regulation of visitors, problems of personnel eating on the floor kitchens, and interrelationships between the nursing department and other departments with which it must of necessity have satisfactory working relationships. For example, the administration must assist in interdepartmental coordination in seeing that requisitions are plainly written, that charge slips get to the business office, that housekeeping schedules are integrated with nursing care, and that cooperation of the pharmacy and of the dietary departments is stabilized at a high level. It is true that many of these working relationships can be smoothly effected by a wise director of nursing, but her work will be made easier and her efforts more far-reaching by the extent to which the hospital administration lends an understanding and a helping hand.

In reviewing the matters on which we confer at our almost daily meetings, our director of nursing and myself feel that, in addition to routine organizational problems, the subjects we discuss most fall into three categories: staffing, personnel and planning. The economic aspects of nursing service are not considered separately for the reason that they are an integral part of each of the three categories enumerated.

The primary problem of staffing is adequate coverage. This is not only related to the increasing recognition of accepted national standards of bedside nursing hours per patient, but must be constantly related to changing needs due to more concentrated care, shorter stay, increasing recognition of education of patients in self-care and in public health, and new horizons in the field of rehabilitation to aid the patient in bridging the gap from hospital care to self-care at home. Some of the aspects of the more concentrated care have been partially offset by early ambulation and a larger proportion of diagnostic patients. The increase in bedside equipment for maximum self-service by the patient and increasing use of post-operative recovery rooms and central sterile supply systems has also been important in offsetting the need for increase in bedside nursing hours. The matter of providing special nursing care for critically ill patients is an ever-recurring problem, and sometimes one of major financial consideration to the hospital. Organization for catastrophe needs must be kept up to date at all times. Throughout there must be constant study as to best utilization of personnel at the sub-professional level. The cost of additional or more highly trained personnel, like the cost of new equipment, to effect higher standards of nursing service, is often a budgetary procedure and dependent upon special sources of income.

Personnel problems are of two kinds, job training and inter-personal relationships. Under the head of job training comes discussion of the constantly recurring problems of teaching old and new personnel new techniques and the use of drugs and mechanical equipment, as well as human considerations in the bedside care of the patient. The administration should assist the nursing service in arranging institutes for instruction in such subjects as the care of polio patients, operating room procedures, sterilizing techniques, and arrange for college extension courses in such subjects as ward administration for which college credit is given. These programs are in addition to daily, weekly and semi-monthly meetings for various groups of supervisory and general duty nurses and should be open to other nurses in the community.

I like the term "inter-personal relationships." It suggests a positive approach to personnel matters, some of which are most difficult. The term also conveys the fact that no matter how many persons are employed in the nursing service, each one must be considered on an individual and personal basis.

* Read at the Annual Meeting of the Maine Hospital Association, June 28, 1950.

THE POINT RATING SYSTEM OF THE AMERICAN COLLEGE OF SURGEONS AND THE HOSPITAL*

HUSTON K. SPANGLER, M. D., Medical Director, Worcester City Hospital

Few would question the value of the achievements the American College of Surgeons with its program of Hospital Standardization upon American hospitals. It is to be hoped that the extension of this program in the form of a point rating system of evaluation will prove to be of even greater assistance to the modern hospital.

This is an extension of the standardization program into terms of a mathematical yardstick.

By means of this yardstick it is hoped that the hospitals may be helped to improve the quality of their professional care and become more aware of those proper techniques and procedures which are today considered essential for the adequate care of the patient. It is in no sense an attempt to regiment or to standardize methods by which this proper care of a patient can be achieved. It should be appreciated that the rating system is only a yardstick that may be useful in self measuring the achievements of the hospital and it is not an attempt toward standardization.

Briefly stated the point rating system may be explained as follows:

- (1) The principles of standardization of hospitals as long set forth by the American College of Surgeons are the guides for the evaluation of the hospital.
- (2) The point rating system provides only an objective measuring stick for evaluating how adequately these standards are met.
- (3) It implements the standards in a manner which it is hoped is particularly understandable and beneficial to all hospitals and represents no departure from those standards as laid down in the Manual of Hospitalization Standardization.
- (4) It attempts to assign to each division of the hospital a numerical number of points which would indicate its value in relationship to hospital service as a whole.

The system arbitrarily consists of two parts which have been identified as the Essential Division and the Adjunct and Service Divisions. For the purpose of our discussion this morning I think it is interesting to note the value placed in the essential division upon medical staff organization and the medical records department. 200 maximum points are as-

signed to the medical staff organization and 125 points to the medical records department, so that 325 points or more than half of the total value of the essential division is allotted to these two departments. The medical record department is considered essentially a professional service of the hospital and the responsibility of the medical and professional staff.

The College, by means of the Hospital Standardization Program and Point Rating System, hopes, by giving credit for certain types of staff organization, to encourage hospitals to improve their medical staffs and thus improve the professional care to the patients. Let us discuss what in general these requirements are.

1. *The Medical Staff Shall Be Organized.*

The type of organization is left in the main to the hospital itself so that local conditions and circumstances are best satisfied. The closed type of organization is recommended as best although the open controlled type is considered acceptable. Experience in several sized hospitals in widely separated sections of the country has convinced me that with patience, education and tolerance both the medical profession and the community which supports the hospital can be educated to not only accept but to endorse closed staff organizations.

2. *The Medical Staff Shall Have By-Laws, Rules and Regulations.*

These should be adequate for the type and size of the hospital. They should be revised from time to time so as to meet current needs and should be signed by all members of the staff as evidence of the individual staff members' acceptance of them without reservation or exception. Of course, they are meaningless or worse if they are not enforced.

I should like to comment in this connection that inasmuch as few hospitals and few communities are identical or similar in type, the tendency to accept a universal type of staff by-laws just because it has been offered as a model is to be deplored. The blind or complacent acceptance of a set of prefabricated and predigested by-laws by a group as individualistic as a group of physicians can only indicate apathy, indifference, or a premeditated intention to disregard them.

Take the time and effort to custom tailor the staff by-laws to suit the characteristics of your community and the physicians who compose your staff. The

* Read at the Annual Meeting of the Maine Hospital Association, Belgrade Lakes, Maine. June 28, 1950.

mass production types which were intended originally only as a guide or model will prove about as practical or comfortable as a universal suit or girdle.

3. *Written Staff Applications Which Contain the Principles of Financial Relations in the Professional Care of the Patient Are Required From All Members.*

The requirement of a written comprehensive application, with proper credential support, will prove invaluable to the hospital not only in receiving adequate information upon which to base a decision, but will provide a permanent source of authenticated data which may prove later most valuable in justifying or defending a previous appointment. However, the use of a written application must not lead to perfunctory or careless handling as it may still be possible for ingenious applicants to impose upon unwary hospital administrators and staffs.

The advantages of not permitting fee-splitting to the hospital, the staff and the patient are so great as to not warrant comment.

An organizational form that requires the recommendation and consideration of the organized medical staff of each applicant for appointment is of great benefit to Governing Body and Staff alike. The Governing Body has the advantage of the opinion of a professional panel in the evaluation of the applicant's professional attainments and ability to assist with the work of the hospital. The Medical Staff is given the opportunity to recommend and evaluate the suitability of a possible colleague and are made aware of their co-partnership with the Governing Body of their responsibility in the operation of the hospital.

4. *The Qualifications of the Members of the Medical Staff as to Their Graduation from Approved Medical Schools, State Licensure and Eligibility for Membership in Recognized Medical Societies and Organizations.*

This requirement is one that leaves little basis for discussion in that it contains definite advantages to the hospital, the staff and the patient. However, in States where unapproved medical schools have existed and where licensing authority have given the right to practice to non-medical practitioners a serious local community problem can occur. These problems can and have been solved in many localities and hospitals by education and community understanding.

5. *Appointments to the Medical Staff Should be Made Annually.*

This not only prevents the members of the medical staff from developing a feeling of invested lifetime interest in the institution but is of valuable practical assistance in making certain staff changes without legal embarrassment if the need should arise.

No thinking staff members should object to this policy, but rather should resent a lifetime or perpetual appointment in the same sense that they would resent a spendthrift trust arrangement in their financial affairs.

6. *Medical Staff Groups Should Be Clearly Defined as to their Duties and Privileges.*

This will vary from hospital to hospital, but is without question as desirable in the smallest organization as well as in the most complex. In fact, in practice a clear definition is often more useful in the less complex organization, as self imposed limitations as to spheres of practices and privileges are less likely to exist. Again I would urge that staff grouping and definitions be based on the individual hospitals and community and not because of custom or habit.

7. *Staff Departmentalization as to Organization Services and Committees.*

These should vary with each hospital, or should exist where required as worthwhile, effective and warranted. Paper organization which is perfunctory and non-functioning is highly undesirable and should be abolished by reorganization. Chiefs of staff, chairman of division, executive committee, credentials committee, program committee, staff advisory committee, joint conference committees and others all have their place when needed but should cease to remain as parts of the staff organization when unnecessary and not used.

8. *Statistical Rates and Percentages as Index of Proficiency.*

Many of the commonly used statistical indices, such as death rates, maternal and infant mortalities, morbidity rates, wound sepsis index, Caesarean Section percentages, length of patient stay, consultation percentages, when properly evaluated and interpreted, are all useful yardsticks to a hospital in maintaining professional proficiency.

9. *There shall be a Thorough Review and Analysis of Clinical Work at Least Monthly by Means of Medical Staff Meetings, Clinical Departmental Meetings and Clinico-Pathologic Conferences.*

There is certainly no need to emphasize the value of conferences of a clinical nature. The nature, the frequency and the organization of this review must vary with the size and need of the individual hospital.

10. *The Minutes of the Medical Staff Meetings shall be Recorded in Such a Manner as to Provide Evidence of Review and Analysis.*

It is my opinion that the hospital administration should assist with, if not plan and supervise, the

recording of the minutes and the planning of the staff programs. In many cases this is a distasteful chore to those physicians concerned and may be the basis for much of the indifference and poor attendance at the meetings. Again may I urge that the minutes and the programs be as individualistic as the hospital and the staff themselves and not made to conform to some regimented preconceived pattern set forth by some publishing house or other self appointed authority. How can interest, let alone enthusiasm, be secured by the dog-like following of some dreary routine. Take advantage of your own staff ingenuity and resourcefulness and be agreeably surprised at a changing attitude toward staff meeting.

11. *The Medical Staff Shall Maintain a Satisfactory Means of Liaison with the Governing Board.*

This should also include an established formal channel of liaison between the staff and administration. More formality in dealing with staff problems by the administrator would reduce many misunderstandings in my opinion.

There are a number of satisfactory ways of achieving these liaisons, including joint conference committee, staff advisory committee and even having "non-

active" staff members serve on the Governing Body. Utilize any suitable method but formalize the plan and avoid personal and corridor procedures.

12. *Does the Hospital Maintain Intern and Resident Service with Graduation of Approved Medical Schools.*

The important factors regarding the maintenance of intern and resident service is the availability of adequate clinical material which will be accessible to the house officers, and the interest and willingness of the attending staff to assume the rather arduous duties of a worthwhile program. A poorly organized and administered house officer program can be a liability to both the hospital and the staff and is not an inexpensive method of supplementary staff coverage.

13. *The Hospital Should Maintain an Organized Medical Library with Current Texts and Periodicals.*

A medical library is of value in direct proportion to its usage. Above all it should not be the depository of old books bequeathed by staff members or their widows.

TRENDS IN MEDICAL CARE*

Need for Development of Diagnostic and Out-patient Services

FRANK E. WING, Director, New England Medical Center

The fact that Improvement in Hospital Service has been selected as the underlying theme of this meeting is evidence of a searching approach to the general problem of medical care. That no community, whether large or small, can afford to take a complacent attitude is brought out by the facts revealed in the report of the National Health Assembly held in Washington two years ago. In the face of the introductory statement that "every year 325,000 people die whom we have the knowledge and the skills to save," there is reason to strive for the elimination of all possible obstacles to progress in providing more timely and more effective medical care. Since the hospital is generally accepted as the focus for the distribution of good medical care, it is quite appropriate that we consider some of the trends that give promise of improvement.

I. RETARDING FACTORS

Among the factors which stand in the way of adequate or timely medical care for the rank and file of

people in any community are the habit of not going to a doctor until acute or marked symptoms have developed and loss of time and the high cost to the patient in going from one doctor's office to another for specialized consultations.

II. THE NEED

Recognition of these factors is not of recent origin. The Final Report of the Committee on the cost of Medical Care in 1932 recommends that:

"Medical services, both preventive and therapeutic, should be furnished by organized groups of physicians, . . . and other associated personnel. Such groups should be organized preferably around a hospital. . . . The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician."

Progress towards the creation and implementation of facilities to meet these recommendations has been stimulated by funds made available through the passage of the Social Security Act of 1935. Influenced by changing ideas, state and local health de-

*Read at the Annual Meeting of the Maine Hospital Association, June 28, 1950.

partments have expanded their field of operation to embrace many activities in curative, as well as preventive, medicine. The recent report of the American Public Health Association entitled "The Quality of Medical Care in a National Health Program," sets forth standards and methods by which "services may be rendered under conditions satisfactory both to the public and to the professions." The objectives of such a program include—"the promotion of positive health; the prevention of disease, disability and attendant economic insecurity; cure or mitigation of disease and rehabilitation of the patient." To accomplish these desired results, the Committee which formulated the report maintains that physicians should operate as a team.

You are all familiar with the pattern laid down — affiliation, along geographic lines and service areas, of outlying rural health centers and community clinics with small community hospitals. These, in turn, would affiliate with larger district hospitals and with teaching institutions in a metropolitan area. A pattern for this so-called "organizational triad" is supplied here in Maine by the pioneer coöperative program of the Bingham Associates Fund which provides a two-way flow of personnel and services.

III. METHODS OF IMPLEMENTATION

Thus far, I have not gone beyond the presentation of principles. I should like now to suggest a few ways in which a community (and by this I mean all elements in a community—doctors, hospitals and the general public) may profit by the application of these principles.

The need for a system that will assure opportunity for diagnosis of ambulatory patients before treatment has become so fundamental in the medical economy that it is incumbent on the community hospital to provide such facilities for its staff and for the people who are its potential beneficiaries. This is true regardless of the financial level of individuals requiring the service. Hence we come to consideration of trends in the development of out-patient and diagnostic services.

Out-patient departments, in the general acceptance of the term, have been pretty much restricted to the care of the indigent and the medically indigent in large cities and in teaching centers. Smaller community hospitals have been slow to establish such services, largely because of conflict with private practice. With the development of the more refined aids to diagnosis, requiring expensive equipment, doctors have felt the need for services of this kind as an aid to the care of their private patients.

In these days of highly specialized knowledge, there is no way in which a doctor can go out single-handed and do a good job of medical care. For the

welfare of his patient, he must avail himself of the varied skills of his colleagues. The extent to which this can be done depends upon the way the doctors of a community work.

IV. EXAMPLES OF OUT-PATIENT FACILITIES

The group approach has been applied to medical care at the ward and out-patient level for many years. It is only within more recent years that the same method in various forms has been applied to the care of private patients. Without attempting to exhaust the subject, I shall cite several examples which are typical of the present approach to the problem. (The factual data in 1(a), 1(c) and 2 following is drawn from a talk given by Dr. N. W. Faxon in connection with a recent Course in Hospital Construction and Alterations in New York.)

1. *In Large Hospitals and Teaching Centers*

(a) *The Massachusetts General Hospital* opened a diagnostic Clinic in 1916, the object being to assist local medical doctors in the diagnosis of difficult cases. Admissions were restricted to patients referred by their physician. An inclusive fee was charged plus extra payments for X-ray and special laboratory exams. The patient was returned to the referring physician with a complete report and recommendations for treatment. This clinic was closed with the onset of World War I; re-opened in 1920; closed by World War II and has not been re-opened. Although only moderately successful, possibly because it lacked a clinic manager, it did, in the opinion of Dr. Faxon, fill a real need during the period of its existence.

(b) *Boston Dispensary*. A more successful experiment which developed into a permanent hospital service was begun in 1918, when the Boston Dispensary established a diagnostic or health clinic to which patients were admitted, with or without referral by their family doctor. The clinic was intended for presumably well people of small means in need of a complete physical check-up but either unable or unwilling to pay the \$25-\$50 which such check-up would cost at private rates. Services were limited to diagnosis. A report was sent to the referring physician, or to the physician selected, if treatment was indicated. The fee was \$7.50 plus moderate extra charges for X-ray and other than routine laboratory work. Startling results were reported.

In 1927, Dr. Robert W. Buck, then Chief of the Clinic, analyzed the findings in 800 cases, 80% of whom considered themselves well. Besides many conditions and defects easily remediable, he found:

15 tumors (6 of the breast and 5 of uterine origin).

- 2 cases of diabetes mellitus.
- 6 peptic ulcers.
- 288 refractive errors.
- 155 patients with haemorrhoids.
- 126 with varicose veins.
- 102 diseased tonsils.
- 168 with systolic heart murmurs and
- 90 with arteriosclerosis.

The clinic is still in operation. The present fee is \$20 plus extras as needed, at moderate rates. Doctors are paid on a point basis—one point being credited to the internist who does the general physical examination, 1/2 point for consultations and 1/2 point to the physician who reviews the findings and writes the report.

A counterpart at a higher income level is the Clinic Consultation Service of the Pratt Diagnostic Hospital which was established in 1940 to provide for patients referred by physicians practicing in Maine, Massachusetts and other New England States.

c. *John Hopkins Hospital* opened a diagnostic clinic in 1928 and has continued it essentially without change. The clinic followed the usual pattern, collecting the fee in advance at a flat rate which covered the cost to the hospital and a professional fee. The receipts, after deduction of hospital costs, are divided among the attending staff on a per-session basis. This and the two foregoing examples are hospital-operated projects.

A further development at Johns Hopkins was begun in 1941, as an outgrowth of the policy which had been in vogue for many years, under which certain members of the hospital staff, who spent most of their time in the hospital, had offices in the hospital to treat their private patients. To give like opportunity to other members of the staff, the hospital set aside six examining rooms, a small laboratory and a waiting room for the use of any staff member for the examination of his private patients.

Four years ago, the hospital established its present Private Out-Patient Service for both diagnosis and treatment of patients able to pay full costs. Here we have an example of a hospital which has gone the full way in offering private medical care to ambulatory patients through a service administered by the hospital on a fee-for-service basis, the hospital collecting all charges including professional fees.

2. *Doctors Offices Concentrated Near Hospitals*

In the days when hospitals were used largely for the care of free or ward patients, the doctor depended for his income on care of his private patients in his office or in their homes. Under those conditions it was natural that the doctor should locate his office within easy access to these patients. It often had no relation to the location of the hospital where he did

his free work. As the bed-care of private patients shifted from the home to private and semi-private accommodations in the hospital, the doctor found himself spending much time in travel between his office and the hospital. It followed naturally that if doctors could place their offices at or near the hospital, the time gained thereby could be given to more care of private patients, to teaching, research, exchange of thinking with other doctors or other medical activities. We find a building of this type on Longwood Avenue in Boston, adjacent to the hospital concentrations there, successfully maintained as a private business; also office buildings on the hospital grounds for members of the teaching staffs at the Presbyterian, the New York Hospital and the University of Rochester.

The next step was the development of Office Buildings definitely associated with a hospital and adjacent to it, restricted to use by the hospital staff. An example of this is the new Medical Building of the Hartford Hospital, located on the hospital grounds, connected by passageways with the hospital, constructed and owned by a large Insurance Company, managed by the Company and rented to doctors of the hospital staff. Here preference is given first to the active and then to the courtesy staff. Plans for similar buildings are now under advisement by several Boston hospitals.

3. *The Staff Office*

The so-called "Staff Office" in a medium-sized hospital associated with Northwestern Medical School in Chicago, is described as "a group of rooms, a corridor off the main lobby, set aside for the private care of out-patients. It is not a clinic; it makes no definite assignment of space, time or medical personnel, nor does the hospital receive any direct revenue from each patient per se." The Staff Office does not compete with the part-pay or free clinic which is maintained by the hospital and used for undergraduate teaching. Patients seen in the Staff Office have a private or industrial status. If non-paying, they are under the control of the attending physician rather than of the hospital. The patient pays the hospital for ancillary services. No additional charge is made by the hospital to either the patient or the doctor for use of office or examining facilities. The doctor charges and collects his own fees from the patient.

4. *The Small Hospital*

Other instances might be cited illustrating how hospitals are meeting this need for further development by offering facilities for diagnostic and out-patient service but these mentioned should serve to set the pattern. For the most part, the plans described apply to large or medium-sized hospitals.

Continued on page 110

EDITORIALS

Art — Hobby Exhibit

at

Ninety-seventh Annual Session, Maine Medical Association

The first annual Art Hobby Exhibit will take place at the June, 1951, Maine Medical Association convention at Poland Spring.

Participants are requested to notify the Exhibit Committee on or before May 15th as to their particular entries so that sufficient space may be provided. Similar State and National Exhibits have in recent years attracted much interest.

The physicians of the State of Maine possess the interests and talents in the arts and crafts to insure a fascinating exhibit.

Please inform the Secretary of this committee what

subjects you intend to present and how many of each. e.g.: Oil Paintings, Photographs, Sculptures, Etchings, Fly Tying, Woodworking, Others.

Prizes will be presented.

COMMITTEE MEMBERS

JULIUS GOTTLIEB, M. D., *Chairman*,
MOSES F. LUBELL, M. D., *Co-Chairman*,
WALDO A. CLAPP, M. D.,
ROBERT W. BELKNAP, M. D.,
FRANKLIN F. FERGUSON, M. D.,
FREDERICK R. CARTER, M. D., *Secretary*,
142 High Street, Portland 3, Maine.

1951 State and County Dues

Have you paid your 1951 State and County dues?

According to the By-Laws of the Maine Medical Association, "Any member whose . . . dues for the current year have not been remitted to the Secretary of this Association on or before April 1, shall stand suspended until his name is properly reported (by his County Secretary) and his dues for the current year properly remitted."

Failure to pay your State and County dues, means that your name will be dropped from the Roster and JOURNAL mailing list, that you will be unable to register at the Annual Session, and that you will not be

eligible to the services of the Association's Medical Advisory Committee, which "shall be concerned with the legal problems of physicians, particularly claims for alleged malpractice. It shall seek to find and remedy the causes and conditions from which such legal problems, including malpractice, arise."

The roster for the current year is now being prepared for publication in the June issue of the JOURNAL. If you have neglected to pay your dues to your County Secretary, do so today to insure inclusion of your name.

Interim Session—House of Delegates

The House of Delegates of the Maine Medical Association will meet at the Lancy House, Pittsfield, Maine, on Saturday, April 14, 1951.

A copy of the Order of Business will be sent to the Secretary of each County Society and to the

delegates in ample time for study before the meeting.

It is hoped that the County Delegates (totaling forty) will be there en masse to get things underway for the annual session in June.

INTERIM SESSION OF THE AMERICAN MEDICAL ASSOCIATION

The Clinical Session or Interim Session of the A. M. A., as it is sometimes called, was held in Cleveland, Ohio, December 5 to 8. The House of Delegates met in the Hotel Statler. As usual, there were very few absent delegates.

The first business undertaken was the election of the Practitioner of the Year. Presented to the House were the following nominations: Dr. Jim Camp, Pecos, Texas; Dr. Dean Sherwood Luce, Canton, Mass.; and Dr. William Strange, Loogootee, Indiana. On the second ballot, the delegates elected Dr. Luce of Canton, Mass. Dr. Luce is the first doctor from New England to receive the honour.

Reports from the trustees, including the reports from the various councils, five in number, report of the secretary, reports of the bureaus and the special councils, including Judicial Council, Councils on Medical Education and Hospitals, on Scientific Assembly, and the Council on Medical Service filled the hours of the first meeting.

The secretary reported a membership of 147,725 in 1950, compared to a membership of 145,036 on a comparable date in 1949. The growth in Fellows has increased more slowly — 81,761 in 1950 compared to 81,053 in 1949. Maine records show the following figures: Members numbered 793 in 1949 and 800 in 1950; number of physicians in the State in the 15th Edition of the A. M. A. Directory, 973; Fellows in 1950, 322. In order to be a Fellow and thereby qualify to present a paper before the Scientific Assembly and to qualify as a member of the House of Delegates, a member must make application for acceptance to Fellowship. It is the hope of your delegate that more men in our state society will apply for Fellowship.

The secretary's report carried information about many resolutions which had been approved by the House of Delegates at previous meetings and referred to the Board of Trustees for study and action. Among them was one resolution about which comment may be of interest. At the San Francisco meeting in June, 1950, the House approved a resolution on Costs of Medical Care which requested the trustees to institute a study which "will result in educating the American People as to the differentiation between the costs of physicians' services and the costs of hospital services in hospitalized illness." The Board has asked the Bureau of Medical Economic Research for any data in the files and for recommendations as to the feasibility of making such a study. This resolution is singled out for comment here because several members have spoken to your delegate about the situation.

The members interested in the subject would do

well to scrutinize the reports in the JOURNAL for opinions on the matter.

As happens at all meetings, certain subjects came in for special consideration.

Medical Service, as always, occupied a good share of attention. Two studies, one regarding grievance committees and one regarding placement service have been completed and are available at A. M. A. Headquarters. Another study regarding indigent medical care is at the half-way mark. The Council on Medical Service is a busy, hard working council with Dr. Thomas Hendricks, Secretary.

Public Relations has proven to have an increasing importance during these days of proposed changes. The theme for discussion at the meeting of the State and County officers was Public Relations. Our Executive Secretary attended the meeting and has forwarded to the members of the Association an excellent report of the material presented.

Medical Education during the current emergency has engaged the attention of the House of Delegates and especially the Council on Medical Education and Hospitals of which Dr. H. E. Weiskotten is Chairman and Dr. Donald G. Anderson, Secretary.

Many problems face the council; for example: (1) A general survey of Medical Education, (2) The problem of graduates of foreign medical schools desiring to practice in the United States, (3) The financial support of Medical Education, (4) A revision of the council's standards for several types of residency training and efforts to establish a coöperative program with other organizations in the evaluation of hospitals for residency training. Progress is being made along these lines.

During the Cleveland meeting at a special session of the House, the Chairman of the Board of Trustees, Louis H. Bauer of Hampstead, New York, announced that the A. M. A. was appropriating \$500,000 as a fund to be used for current expenses of the medical schools of the country. The announcement was greeted with enthusiastic applause in the House and the feeling that this appropriation was but the beginning for other generous gifts free from governmental control.

The Educational Campaign was reviewed and approved. The results in certain important elections to public office convinced the delegates that honest educational programs directed to the laity had brought results beyond the expectations of many. The generous contributions and vigorous efforts of the doctors themselves played an important part in the gratifying victories.

Continued on page 108

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Samuel R. Webber, M. D., Calais
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Hancock

A regular meeting of the Hancock County Medical Society was held February 14, 1951, at the Hancock House, Ellsworth, Maine. Twelve members were present.

The meeting opened at 8.10 P. M. with a brief business meeting at which Dr. James Crowe presented some of the legislation under consideration by the present state legislative assembly. A resolution was passed by majority vote that all members of the Hancock County Society entering military service be given courtesy membership in the state and county societies during their term of military service. A resolution to the effect that the county society would pay the secretary's state and county yearly dues was also passed by majority vote.

Dr. Frederick C. Emery of Bangor, presented an interesting paper on the Diagnosis and Clinical Management of Croup.

JOSEPH H. HANSON, M. D.,
Secretary.

Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Augusta General Hospital, January 18, 1951.

President Harlow called the meeting to order at 8.00 P. M. The minutes of the last meeting were read and approved.

W. Mayo Payson, Executive Secretary of the Maine Medical Association, discussed state and national trends. Herbert E. Locke, Esq., malpractice counsel for the State Association spoke briefly.

Dr. Frank S. Broggi of Portland, guest speaker of the evening, was introduced by Dr. Francis S. Sleeper, Superintendent of the Augusta State Hospital. Dr. Broggi spoke on "Emotional Reactions in Normal People."

A. H. MORRELL, M. D.,
Secretary.

Piscataquis

A regular meeting of the Piscataquis County Medical Association was held at the Hotel Greenville, Greenville, Maine, February 21, 1951. An excellent steak supper was enjoyed.

Several interesting cases were presented for discussion by the members.

N. H. NICKERSON, M. D.,
Secretary.

Continued on page 106



*"... it was discovered that Dramamine
... is a powerful preventive of motion
sickness."*

—Editorial: Dramamine,
GP 2:27 (July) 1950



DRAMAMINE[®] BRAND OF DIMENHYDRINATE

—for the prevention and/or treatment of motion sickness

For the dizziness, nausea or vomiting caused by motion, Dramamine has given unusually satisfactory results, prophylactically and therapeutically. Supplied in 50 mg. tablets and in liquid form. G. D. Searle & Co., Chicago 80, Illinois.



RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

*County Society Notes—Continued from page 104***Washington**

A joint meeting of the Washington County Medical Society and the St. Croix Medical Society was held Friday, January 26, 1951, at the Queen Hotel, St. Stephen, N. B., with eighteen members and three guests present.

Dr. R. A. H. MacKeen of St. John, N. B., and Dr. John E. Whitworth of Bangor, Maine, speakers of the evening, were introduced by Dr. Herbert S. Everett of St. Stephen, President of the Washington County Medical Society.

Dr. MacKeen spoke on The Use and Abuse of Laboratory Facilities. The main points that he brought out were that the physician should place his main reliance on physical findings rather than upon the laboratory and that laboratories are doing much unnecessary work because physicians are putting too much reliance on laboratory work often times done by technicians who have no supervision and are inadequately trained. He stressed the importance of the sedimentation rate in following the progress of the patient.

Dr. Whitworth's subject was Tracheo Bronchial Airway. He demonstrated the various types of laryngoscopes and

tracheal catheters and their use from the premature new born to the adult. He demonstrated the use of the bronchoscope and showed by means of X-ray the effect of nonopaque foreign bodies on the lungs and how their presence is diagnosed by the effect on the lung structure. He then showed by X-ray how quickly improvement occurs after removal of the foreign bodies.

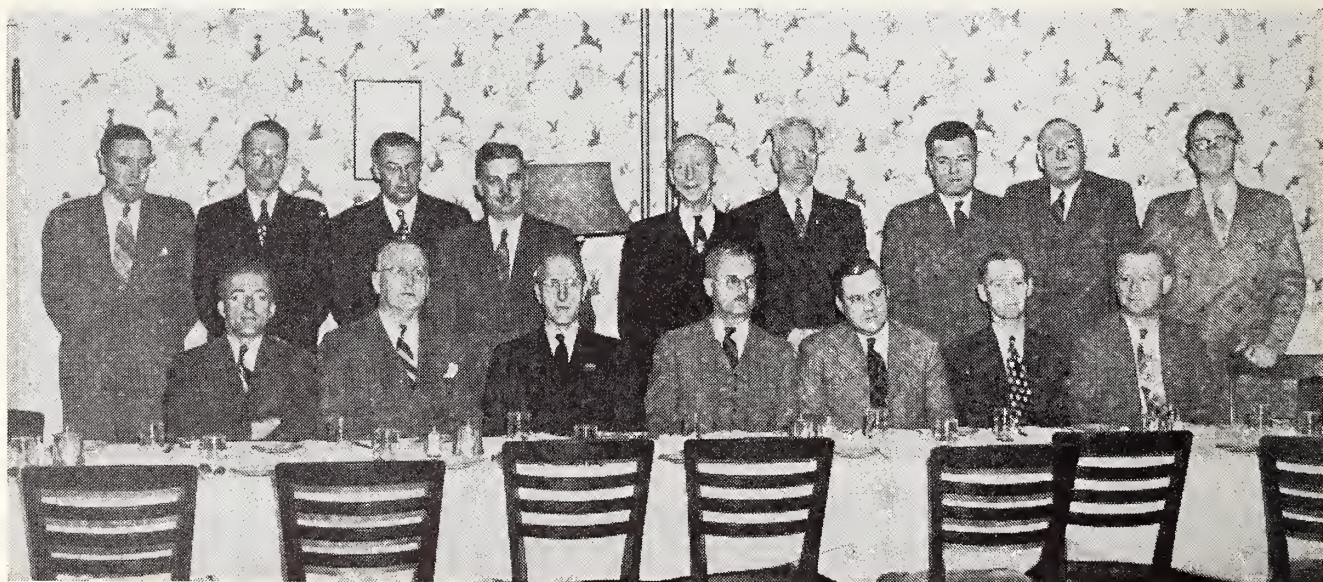
The St. Croix Medical Society was host at a cocktail party which preceded an excellent dinner.

At a brief business meeting following the dinner, Dr. O. F. Larson of Machias, was appointed to set up a medical plan for the Washington County Society in co-ordination with the Civil Defense set-up. The Blue Cross and Blue Shield plans were discussed.

Dr. Frederick C. Whitehead of St. John, N. B., Secretary of the New Brunswick Medical Association, was present as a guest.

KARL V. LARSON, M. D.,
Secretary.

PICTURE TAKEN AT MEETING OF WASHINGTON COUNTY MEDICAL SOCIETY, JANUARY 26, 1951, AT QUEEN HOTEL, ST. STEPHEN, N. B.



Back Row, Left to Right: Dr. E. B. Johnston, St. Stephen, N. B.; Dr. John Kazutow, Machias; Dr. P. J. Mundie, Calais; Dr. George Smith, St. George, N. B.; Dr. George Burton, Milltown, N. B.; Dr. O. F. Larson, Machias; Dr. Frederick Whitehead, St. John N. B.; Dr. S. R. Webber, Calais; Dr. Hazen Mitchell, Calais.

Front Row, Left to Right: Dr. K. V. Larson, Machias; Dr. John Whitworth, Bangor; Dr. H. S. Everett, St. Stephen, N. B.; Dr. R. A. H. MacKeen, St. John, N. B.; Dr. John Metcalf, Calais; Dr. Fred Sears, Milltown, N. B.; Dr. Esmond Stiles, St. Stephen, N. B.

WOMAN'S AUXILIARY TO THE MAINE MEDICAL ASSOCIATION

ANNUAL MEETING WOMAN'S AUXILIARY TO A. M. A.

Haddon Hall will be the headquarters for the Annual Meeting of the Woman's Auxiliary to the American Medical Association, which will be held in Atlantic City, New Jersey, June 11-14, 1951.

Requests for reservations should be sent immediately to Dr. Robert A. Bradley, Chairman, A. M. A., Housing Bureau, 16 Central Pier, Atlantic City, New Jersey.

NEWS AND NOTES

Massachusetts Academy of General Practice Third Annual Spring Clinical Meeting April 4, 1951

MORNING SESSION

Amphitheatre, Boston University School of Medicine
80 East Concord Street, Boston

9.00 to 12.00—Clinics under the auspices of Massachusetts Memorial Hospitals and Boston University School of Medicine. Program under the direction of Chester S. Keefer, M. D., Director, Department of Clinical Research and Preventive Medicine, Robert Dawson Evans Memorial Hospital.

1. Medical Clinic.
2. Minor surgery (office procedures).
3. Obstetrics and Gynecology.

(The exact content of the program will depend on clinical material available at the time.)

AFTERNOON AND EVENING SESSIONS

Hotel Shelton, 91 Bay State Road, Boston

12.30 to 1.00 p. m.—Registration.

1.00 to 2.30 p. m.—Panel luncheon. Panel speakers will be two or three of those taking part in the morning obstetric and gynecologic clinic.

2.45 to 3.30 p. m.—Speaker: Vlado A. Getting, M. D., Commissioner of Public Health, Commonwealth of Massachusetts, Head of Medical and Health Services, Massachusetts Civil Defense.

Subject: "The Role of the General Practitioner in Civil Defense."

3.30 to 4.15 p. m.—Speaker: Burnham S. Walker, M. D., Professor of Biochemistry, Boston University School of Medicine.

Subject: "Practical Applications of Adrenal Physiology."

4.30 to 6.00 p. m.—Business meeting.

6.00 to 7.00 p. m.—Cocktail Hour.

7.00 p. m.—Dinner.

After-dinner speaker: Rudolph Elie, Columnist and Music Critic, *Boston Herald-Traveler*, Roving War Correspondent.

Subject: "The Roving Eye in Europe."

For further information write to James G. Simmons, M. D., Secretary, 30 Myrtle Avenue, Fitchburg, Mass.

Department of Health and Welfare Division of Maternal and Child Health (Including Services for Crippled Children) Clinic Schedule—1951

ORTHOPEDIC CLINICS

Portland — Maine General Hospital, 9.00-11.00 a. m.: Jan. 8, Feb. 12, Mar. 12, April 9, May 14, June 11, July 9, Aug. 13, Sept. 10, Oct. 8, Nov. 5, Dec. 10.

Lewiston — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 19, Feb. 16, Mar. 16, April 20, May 18, June 15, July 20, Aug. 17, Sept. 21, Oct. 19, Nov. 16, Dec. 21.

Rumford — Community Hospital, 1.30-3.00 p. m.: Mar. 14, June 20, Sept. 19, Dec. 19.

Waterville — Thayer Hospital, 1.30-3.00 p. m.: Feb. 15, April 26, June 28, Aug. 23, Oct. 25, Dec. 27.

Rockland — Knox County Hospital, 1.30-3.00 p. m.: Feb. 8, May 17, Aug. 16, Nov. 15.

Machias — Normal School, 1.30-3.00 p. m.: Feb. 14, Apr. 11, June 13, Aug. 8, Oct. 10, Dec. 12.

Presque Isle — Northern Maine Sanatorium, 9.00-11.00 a. m.: Jan. 9, Mar. 7, May 8, July 11, Sept. 11, Nov. 7.

Houlton — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 6, July 10, Nov. 6.

Fort Kent — Normal School, 10.00-1.00 p. m.: Jan. 10, May 9, Sept. 12.

Bangor — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 25, Mar. 29, May 24, July 26, Sept. 27, Nov. 29.

CARDIAC CLINICS

Portland — Maine General Hospital, 9.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

Bangor — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

HARD-OF-HEARING CLINICS

Waterville — Thayer Hospital, 1.30-3.30 p. m.: Feb. 21, June 6, Sept. 5, Dec. 5.

PEDIATRIC CLINICS

Bangor — Eastern Maine General Hospital, 1.30 p. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

Waterville — Thayer Hospital, 1.30 p. m.: Jan. 2, Feb. 6, Mar. 6, April 3, May 1, June 5, July 3, Aug. 7, Sept. 4, Oct. 2, Nov. 6, Dec. 4.

Presque Isle — Northern Maine Sanatorium, 1.30 p. m.: Jan. 24, Mar. 28, May 23, July 25, Sept. 26, Nov. 28.

By appointment only.

Interim Session of the American Medical Association—Continued from page 103

Other councils and bureaus had resolutions for consideration. All of them were considered carefully, approved or disapproved and recorded. Indeed, your House of Delegates was busy as usual, considerate of all proposals, democratic in procedure, and progressive in a sound manner.

One of the special events was the reading of the paper of William L. Hutchison before a joint meeting of the House of Delegates of the A. M. A. and the third annual conference of the National Education Campaign on the last day of the convention. Mr. Hutchison is General President, United Brotherhood of Carpenters and Joiners of America. The paper starts as follows: "I am against Socialized Medicine. So is the organization with which I have the honor of heading." It is published in the December 9 issue of the J. A. M. A. You might, it seems to me, enjoy reading it.

The Scientific Assembly under the direction of Dr. Henry Viets, a friend of many of the members

of our association, was of excellent quality. The majority of the papers were designed to appeal to the general practitioner. The scientific exhibit covered a wide range of subjects and were beautifully prepared. The commercial exhibits offered information, up to date information, on all current equipment and medications. Once again your delegate noted the low attendance of doctors from Maine. The Doctors Reeves from South Paris, Maine, were registered, but your delegate did not have the opportunity to see them.

The Annual Meeting will be held in Atlantic City, on June 11 to 15, 1951.

Since this report was written the California Medical Association has appropriated \$100,000.00 to the \$500,000.00 fund of the A. M. A. to meet cost of medical education.

THOMAS A. FOSTER, M. D.,
Delegate.

HOSPITAL STAFF MEETINGS
Open to the Profession

CITY	HOSPITAL	DATE
Augusta	Augusta General Hospital	1st Wednesday
Bangor	Eastern Maine General	2nd Tuesday
Bath	Bath Memorial Hospital	1st Tuesday
Belfast	Waldo County	2nd Friday
Biddeford	Webber Hospital	2nd Thursday
Boothbay Harbor	St. Andrew's Hospital	4th Tuesday
Caribou	Cary Memorial	1st Wednesday
Damariscotta	Miles Memorial	2nd Thursday
Farmington	Franklin County Memorial	2nd Monday
Greenville	Charles Dean Hospital	2nd Wednesday
Hartland	Scott Webb Memorial Hospital	1st Wednesday
Lewiston	Central Maine General	2nd Thursday
	St. Mary's General	2nd Monday
Portland	Maine Eye and Ear Infirmary	1st Tuesday
	Maine General	2nd Friday
	Mercy	3rd Thursday
Presque Isle	Presque Isle General	1st and 3rd Tuesdays
Rockland	Knox County General	1st Monday
Rumford	Rumford Community	4th Wednesday
Sanford	Goodall Memorial	2nd Monday
Waterville	Sisters	2nd Tuesday
	Thayer	Every Thursday

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

Bacterial Nasal Allergy—Continued from page 95

tempted by the oral route, being guided by the same general principles as employed in parenteral desensitization.

Supportive measures were not neglected. In the early stages of treatment, patients were instructed to employ locally a mild decongestant spray, preferably one containing an antibiotic agent. This was given for a short time only because the protracted or injudicious employment of vasoconstrictor drugs (Kern)⁴ is followed by vasoparalysis and a consequent increase of mucosal edema.

Antihistaminic drugs were valuable adjuncts and were employed for symptomatic relief in recommended doses. As improvement was noted, they were decreased in a tapering-off manner and finally discontinued. The more severe cases received an initial injection of 25 mg. of aqueous Thephorin* subcutaneously or intramuscularly. Gratifying relief was obtained within a relatively short time. The nasal obstruction and discharge diminished and breathing was easier. The parenteral administration was supplemented with a 25 mg. tablet of Thephorin orally 3 or 4 times daily.

Potent multiple vitamins were administered routinely for a prolonged period to all the patients for a general tonic effect. Within a comparatively short time, they became eager and alert, experienced a feeling of well being, regained their appetites, and their complexions improved.

The complications of bacterial nasal allergy (edematous turbinates, nasal polyps, and inadequate drainage) oftentimes require surgical treatment. Unless these complications are extensive and seriously interfere with the patient's comfort and general health, intranasal surgical procedures should not be performed immediately. When early operation is essential, allergic therapy should not be neglected afterwards, otherwise, the symptoms may persist and the complications, especially nasal polyps, tend to recur. In such cases, post-operative anti-allergic therapy follow-up is imperative. Many patients, not receiving the full benefit of post operative anti-allergic treatment, have been subjected, perhaps needlessly,

to repeated intranasal operations. However, the vast majority of cases lend themselves to conservative measures first and intranasal surgery, if found necessary, can be performed at a much later date. Very often, with proper anti-allergic therapy, edematous turbinates return to normal, small nasal polyps disappear, and drainage is re-established.

RESULTS

With this integrated therapy in our series of 200 cases, 158 patients (79%) received excellent results; 31 (15.5%) had a good improvement; and 8 (4%) fair. Only 2 patients (1%) failed to improve. The remaining case (0.5%) due solely to an uncomplicated inhalant sensitivity is not included in these results. The nasal symptoms were markedly improved after 6 to 8 weekly treatments. In many patients, a spectacular amelioration was noted after only 1 or 2 treatments. Sneezing, itching, nasal discharge, post-nasal drip, nasal voice, and frontal headache quickly disappeared. Patients also experienced an improvement in their general health.

SUMMARY AND CONCLUSIONS

Bacterial nasal allergy constitutes the most important specific etiologic factor of perennial allergic coryza. The diagnosis is based upon a history of frequent attacks of long-drawn-out upper respiratory infections and pathognomonic local symptoms and signs. Its successful treatment depends upon several therapeutic measures, each properly integrated to form a therapeutic chain, which embody the allergic approach as the primary essence of treatment and reserve rhinologic surgery for the treatment of nasal complications only.

REFERENCES

1. Vaughan, W. T.: Practice of Allergy. St. Louis, 1939, The C. V. Mosby Co.
2. Hansel, F. K.: Allergy of the Nose and Paranasal Sinuses. St. Louis, 1936, The C. V. Mosby Co.
3. Rackemann, F. M.: Personal Communication.
4. Kern, R. A.: Perennial Allergic Rhinitis: The Most Important Respiratory Allergy. M. Clin. N. Amer., 1947, Nov., 1375-1392.

* Supplied by Hoffmann-LaRoche, Inc., Nutley, N. J.

**COSMETIC DERMATITIS?**

Clinical tests confirm the use of AR-EX Cosmetics for hyper-sensitive skins. Scented or Unscented. Send for Free Formulary.

AR-EX
HYP-ALLERGENIC
COSMETICS

**Free Diagnostic Aid**

Table of cosmetic irritants and allergens — an aid in diagnosing cosmetic sensitivity — sent to physicians on request.

AR-EX COSMETICS, INC., 1036 W. VAN BUREN ST., CHICAGO 7, ILL.

Trends in Medical Care—Continued from page 101

The questions which might be asked are:

"What can the small hospital in Maine do to improve the quality of diagnostic services in its community?"

"How can it offer to the doctors of its community the widest possible opportunity for scientific growth and the exercise of their professional skills?"

Obviously the small hospital cannot supply individual offices for each member of its staff nor can it provide an office building for them, either on or adjacent to its grounds. But I suggest that, if it is re-building or adding to the plant, a hospital can include two to four examining rooms equipped with facilities for the ordinary routine physical examination, including eye, ear, nose and throat equipment, at least one table with stirrups for gynecological examination, possibly a dental chair and such instruments as are necessary to carry out the various examining procedures. These offices should be located off a small lobby or corridor, conveniently accessible to the information or admitting desk, with a small waiting room and possibly a desk or table for the use of a clerk, when needed.

The offices would not be used by any one physician to the exclusion of others but should be available by appointment for definitely stipulated periods of time to any member of the staff or to any ethical practitioner in the community who might wish to meet his patient at the hospital, instead of at his office. The occasions calling for this procedure would most

likely be for taking the history and first examination of a patient with obscure symptoms, or one who the doctor believes may, in addition, require consultation by a specialist, or X-ray examination and other ancillary diagnostic procedures. If the hospital has an intern or a resident physician, he might assist in taking the history and in the work-up of the case. This opportunity for out-patient instruction would round out the House Officer's otherwise lop-sided experience, since he would enter the case at the beginning rather than at the middle of the first act. The patient would be spared loss of time in consultation, and quicker arrival at a diagnosis would be assured. Future visits would be made by the patient at the doctor's own office or they might be continued at the hospital but, in any event, the patient would remain under the care and control of the referring physician.

An excellent example of such physical space and equipment is shown in the plans of the Mansfield Clinic which will be an integral part of the new Thayer Hospital in Waterville. The trustees, the administration and the architects of the hospital are to be congratulated in having taken this forward step in community hospital construction.

The financial arrangement for use of the hospital facilities and of the examining rooms might be set up according to any one of several patterns. The important consideration is that all concerned would benefit and the pay-off would be good public relations for the hospital and a step towards better medical care.

Clinical Experience With Chlor-Trimeton—Continued from page 91

15. Browning, R. H.: The Early Treatment of Common Colds with an Antihistamine—Histadyl. *New Eng. J. Med.*, 243:994-995, 1950.
16. Lowell, F. C., Schiller, I. W., Alman, J. E., Mountain, C. F.: The Antihistaminic Drugs in the Treatment of the Common Cold. *New Eng. J. Med.*, 244:132-134, 1951.
17. Schiller, I. W., and Lowell, F. C.: The Effects of Drugs

- in Modifying the Response of Asthmatic Subjects to Inhalation of Pollen Extracts as Determined by Vital Capacity Measurements. *Ann. Allergy*, 5:564-566, 1947.
18. Schiller, I. W., and Lowell, F. C.: Trimeton, A New Antihistaminic Drug. *New Eng. J. Med.*, 240:215, 1949.
19. Gilman, A.: A Personal Communication to Committee on Therapy. *Am. Academy of Allergy*, 1949.

PHARMACEUTICALS

A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903.

ZEMMER**THE ZEMMER CO., PITTSBURGH 13, PA.**

Have you tried the Aerohalor in treating secondary invaders

of the Common Cold?



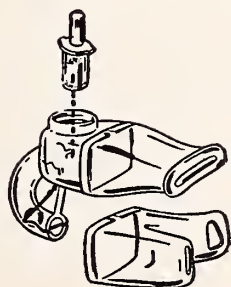
Let us make this point clear at the beginning. We do not recommend penicillin powder inhalation therapy with the AEROHALOR as a cure for the virus cold. It is not. But Krasno and Rhoads¹ have some interesting observations:

"The course of ordinary colds is strikingly shortened by prompt use of the penicillin dust inhalation. We have no illusions that it is effective against virus that initiates the common cold or any other viruses."

The authors also report: "We are fully aware that the etiologic agent of the common cold is probably not a penicillin-sensitive organism. Secondary invaders undoubtedly account for the accentuation of the initial symptoms and in most instances for the more serious complications. Dramatic results often are seen in those patients in whom the cold has been hanging on."

As to the therapeutic effectiveness of inhaled penicillin dust, Krasno and Rhoads state "with assurance" that "bacterial infections of the nasopharynx, para-nasal sinuses, nasal mucosa, larynx and trachea of fairly recent origin, respond well to this form of treatment."

The smoke-it-like-a-pipe therapy afforded by the AEROHALOR is convenient and effective. For the complete story, write for comprehensive literature to Abbott Laboratories, North Chicago, Illinois. **Abbott**



Aerohalor[®]

(ABBOTT'S POWDER INHALER)

AEROHALOR comes assembled with detachable mouthpiece. Easily interchangeable nosepiece included in package. Disposable AEROHALOR* Cartridge containing 100,000 units of finely powdered penicillin G potassium is prescribed separately—three to an air-tight vial.

*Trade Mark for Abbott Sifter Cartridge. AEROHALOR and AEROHALOR Cartridge patented in U. S. and Foreign Countries. 1. Krasno, L., and Rhoads, P. (1949), The Inhalation of Penicillin Dust; Its Proper Role in the Management of Respiratory Infections, Amer. Prac., 11:649, July.

Advertisement



From where I sit *by Joe Marsh*

Slim and His "Ali Species"

Slim Baker, who's always doing something crazy, had a lot of people smiling last week all because his entry won a blue ribbon in the Women's Club Annual Pet Show.

Seems as though Slim saw a strange-colored alley cat with no tail and brought it home. He washed, combed, and brushed it and put a collar on the cat with a card reading "Ali Species." Then he enters it in the show.

Hanged if the ladies didn't think it was some rare kind of cat and gave it a special award! When one of them asked Slim where she could get one like it, he said, "It's all yours, M'am—I can pick up an 'Alley Cat' any time I want to!"

From where I sit, some of us are often easily "taken in" on someone else's say-so. Whether awarding prizes, passing judgment on how a man should follow his profession, or questioning our neighbor's preference for a glass of beer—let's take a look from stem to stern before making any final decision on the matter.

Joe Marsh

Copyright, 1951, United States Brewers Foundation

Planning—A Must in Today's Hospital Nursing Service *Continued from page 96*

When we forget the individuality of our nurses we lose the human touch in the care of the patient. Therefore, it is the responsibility of the administration to supply objective guidance in matters of employment practice and problems arising in personal relationship, whether it be in job training programs or in the most unpleasant of correctional matters. It is a foregone conclusion to me that the administration needs to be consulted in cases of personnel problems regardless of whether they involve a radical change in the life of one individual or a problem of broad major concern affecting many people. It not only is possible but it is necessary that the administration develop the complete confidence of the director of nursing in personnel matters.

Planning for nursing service is also a two-way relationship between the director of nursing and the administrator. Each must contribute of his thinking to the other. The director of nursing can come back from a local, regional or national meeting with ideas far removed from her daily routine. Likewise the administrator who has attended a nursing session at a hospital meeting may come back to inquire into some of the most minute detail of routine organization which in its enlargement may improve patient care. Each may approach such subjects as home nursing care or relationships with the district nurse association, the various state nursing agencies, and other health agencies in the community from entirely different points of view. It is immaterial by whom or at what level of importance discussion begins. The important thing is that the working relationship be such that there be a complete freedom of exchange of ideas.

The principle of consultation between the administrator and the director of nursing is equally important in the relationships between the director of nursing and the supervisor, between the supervisor and the head nurse, and between the head nurse and the floor nurse. When such consultation is carried out with regularity and with a sincerity that builds confidence and a recognition of the importance of the individual and his contribution, the administration will not need to seek long or far for necessary information. Patient care will achieve the highest possible standard and the word "planning" will be used increasingly in place of the word "problem."

The experience of two great wars and studies of the mortality figures of tuberculosis in relation to environment have shown that when the standard of living falls tuberculosis rises. — Frederick Heaf, *British Med. J.*, November 5, 1949.



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, April, 1951

No. 4

REPORT OF A CASE OF HYPERINSULINISM

WILLIAM F. MAHANEY, M. D., Saco, Maine

Hyperinsulinism is an uncommon disease. A recent search of the literature reveals only 184 cases. Of these, 135 were due to benign adenomata.^{1, 2, 9, 20} Kuffel et al.¹ report only one case at the Henry Ford Hospital in over 500,000 admissions. Another case is presented here.

S. S., No. 770. A fifty-eight-year-old white female was first seen in the office on March 1, 1948. Her chief complaint was nervousness of three years' duration which had gradually become worse. For the past year and a half she had never allowed herself to remain alone at any time and had carried this to such an extent that her only daughter was forced to give up her position to remain at home as a companion. She stated that she had attacks of "fainting," went to bed, and appeared to be unconscious. When given food or any type of nourishment she regained consciousness and felt well except for slight weakness. If she ate frequently she was able to abort or avoid these spells. During the past three years she had received numerous medications for these "spells" but had obtained no relief. She was seen on one occasion by a psychiatrist who felt that she was suffering from a depressive state due to the onset of the menopause and advised sanatorium care. She had lost approximately thirty pounds in weight, had lost all interest in life, and did not care to go on living.

Systemic Review: She had noticed increased flatulence and belching but no abdominal pain. E. N. T. negative. Cardiovascular negative. G. U. negative.

Past Medical History: There was jaundice after one of her children. She was gravida 4, para 3. She denied previous operations. She had lobar pneumonia several years ago.

Family History: Mother and father dead, causes unknown. Three children living and well.

Physical Examination: The patient was a thin, white female who was extremely nervous and discouraged. She had an anxious expression on her face. Her color was good. The ears, nose and throat were negative except for artificial dentures. Pupils were equal and reacted to light and accommodation. Neck showed no lymphadenopathy. The thyroid was not palpable. Lungs were clear to auscultation and percussion. The heart showed regular sinus rhythm, pulse was 80, B. P. was 180/82. No masses, no tenderness nor rigidity were found in the abdomen. There was a marital introitus. The cervix was slightly eroded. The fundus and adnexa appeared negative. Rectal examination was negative. Extremities were negative. The deep reflexes were physiologically active.

Diagnosis: Islet cell tumor of the pancreas, erosion of the cervix.

A fasting blood sugar the following day was reported as 40 mg.%. R. B. C. was 4.2. Hgb. 78%. W. B. C. was 7,600. Polys. 67. Lymphs. 33. The urine was negative. The following day a glucose

tolerance test was performed. The fasting blood sugar was reported as 41.6 mg.%. One hundred mg. of glucose were given by mouth and a half an hour later the blood sugar was reported as 83.3 mg.%. In one hour it was reported as 133.3 mg.%. In two hours it was reported as 153.3 mg.%, and in three hours it was reported as 86.9 mg.%. A B. M. R. was reported as -14.

The following day a fasting blood sugar at 7 a. m. was reported as 68.1 mg.%, and at 12 noon the blood sugar had dropped to 41 mg.%. On March 22, 1948, she was admitted to the hospital for further examination. Blood typing was Group A, Rh positive. Glucose tolerance tests performed on this day showed a fasting blood sugar of 47.6 mg.%. She was then given 100 mg. of glucose by mouth and half an hour later the blood sugar was 333.3 mg.%. One hour later it was 166.6 mg.%. Two hours later it was 166.6 mg.%. Three hours later it was 142.9 mg.%, and four hours later it was 111.1 mg.%. At 3.00 p. m. on the same day, while still fasting, the patient suddenly became unconscious and an emergency blood sugar was done which was reported as 25 mg.%. She responded very rapidly to intravenous glucose and within 15 to 20 minutes she was well oriented. On March 26, 1948, she was operated upon.

Under fractional spinal and pentothal sodium anesthesia the abdomen was opened through a upper right rectus incision. Exploration of the abdomen was negative. An opening was made in the gastrocolic ligament, exposing the pancreas. In the body of the pancreas overlying the vertebrae there was a firm nodule which measured approximately 2 cm. in diameter. An incision was made through the capsule of the pancreas over this and this nodule was carefully dissected free by blunt dissection. It appeared to be well encapsulated. The duct of Wirsung lay anterior to this tumor mass and the duct was carefully preserved. No other masses were palpated. The diagnosis was islet cell adenoma of the pancreas. The pathology report was as follows:

"Specimen consists of round, flattened, mottled gray and yellow piece of tissue, fixed in formalin, which measured 1.2 cm. in depth and 2 cm. in diameter. It has been incised and it appears on section to be white, firm and fibrous in consistency. It would appear to be encapsulated. Microscopic: In these sections there is a tumor apparently well defined and almost encapsulated, at least well demarcated from the adjacent pancreatic tissue. The tumor consists of dense, fibrous tissue, throughout which there are groups of cells, occasionally arranged in cords, but in other instances arranged in groups resembling islets. For the most part the cells have a pale, almost vesicular, or clear cytoplasm, without any evidence of lumen formation, although in the center of some of these cell masses there are calcareous deposits. Impression: Islet cell tumor, benign."

Postoperatively, the patient did very well except for the formation of a pancreatic cyst which was drained by anastomosis of its wall to the stomach. She was out of bed on her first postoperative day. A fasting blood sugar one year after operation was reported as 100 mg.%. She had gained fifteen pounds in weight and had resumed all normal activities.

Discussion:

Rynearson² limits the term "hyperinsulinism" to those patients whose condition is caused by the excessive production of endogenous insulin due to a tumor or hyperplasia of the Islands of Langerhans. He states that there are not more than 100 proven cases of hyperinsulinism in the literature. Since the discovery of insulin in 1921 by Banting et al., a new symptom complex arose. The medical profession became aware of insulin shock and the symptoms of hypoglycemia.

The classical "triad" of Whipple³ must be present for a diagnosis of hyperinsulinism.

- (a) Attacks of insulin shock during fasting or while in a fasting state.
- (b) Blood sugar readings of 50 mg or less.
- (c) Relatively prompt relief following the administration of glucose by mouth or parenterally.

In 1921, Seale Harris⁴ published three cases with symptoms he believed to be caused by spontaneous hypoglycemia due to hyperinsulinism. The first operative case was reported by Wilder et al.⁵ in 1927. This proved to be an inoperable islet cell carcinoma, and they recovered large amounts of insulin from the islet cell carcinoma and from the metastatic growths in the liver. In 1929, Howland⁶ reported the first surgical cure of a patient with an islet cell adenoma.

The causes of spontaneous hypoglycemia⁷ are:

- (A) *Disease of the Endocrine Glands.*
 - (a) Hyperinsulinism.
 - (1) Tumor, benign or malignant, of the Islands of Langerhans.
 - (2) Functional hypertrophy with hyperplasia of the Islands of Langerhans.
 - (b) Adrenal cortex insufficiency — Addison's Disease.
 - (c) Hypophyseal disorders.
 - (1) Simmon's Disease.
 - (2) Tumor (pituitary).
 - (d) Hypothyroidism.
- (B) *Diseases of the Liver.*
 - (a) Extensive hepatic disease such as observed in acute yellow atrophy, primary or metastatic carcinoma, cirrhosis, arsenamine, and other poisoning and Von Gerkie's Disease.

- (b) Chronic infectious hepatitis (ascending cholangitis).
- (c) Disturbances of the nervous system.
 - (1) Functional disturbance of the sympathetic nervous system.
 - (2) Organic disease of the nervous system.
- (d) Miscellaneous — exercise, under-nutrition, afebrile cachexia, diarrhea, muscular disatrophy, status thymolymphaticus, lactation and renal glycosuria.
- (e) Unknown etiology.

The clinical complex of hyperinsulinism is due to functionally overactive islet cells, a hyperplasia of the islet cells, or to tumors, benign or malignant, of the Island of Langerhans. Whipple⁸ collected 74 cases of tumors of the Islands of Langerhans, 56 of them found at operation and 18 at autopsy, which were reported prior to 1938. In 1947, Lopez, Kruger and Dockerty⁹ reviewed the tumors of the islet cells of Langerhans encountered at the Mayo Clinic. From 1927 to September, 1945, in 19 cases, a diagnosis of hyperinsulinism was based on the presence of benign islet cell tumors which were successfully removed at operation. In two additional cases the tumor could not be located at surgery and was only discovered after careful search at necropsy. In another case, there existed a condition, diffuse islet cell adenomatosis, which was only partially removed by subtotal pancreatectomy.

Tumors encountered in this group were single in 22 cases and in one case multiple. Six of the single tumors were definitely located in the tail of the pancreas and an additional five were found at the junction of the body and the tail of the gland. Nine of the tumors were found imbedded deep in the head of the pancreas. An ectopic site was established in one case in which repeated resections had failed to reveal the presence of adenomata, and in the remaining case multiple tumors were present in the tail of the gland. It is stated that it was found that a location, other than in the body or tail of the pancreas, usually necessitated subtotal or total pancreatectomy in one or more stages. It is most unusual for an adenoma smaller than 5 mm. to be productive of clinical hyperinsulinism.

A more or less complete fibrous or fibral elastic tissue capsule delimited most adenomas from the surrounding pancreatic tissue. The capsule may be poorly defined, very thin, or present over a portion of the tumor. On cut surface, the tumors have a pinkish or grayish color and a more or less homogeneous smooth texture, unlike the lobulated appearance of the surrounded gland. The consistency is somewhat firmer than that of the normal pancreas but the differ-

ence is not such to be of practical help in localizing small and deeply lying tumors of this type.

Islet cell carcinoma, in spite of the anaplasia of the cells and their rapidity of growth, can produce insulin and clinical hypoglycemia.

Consideration of Other Causes of Spontaneous Hypoglycemia.

Diseases of the Liver: There is no difficulty in recognizing the cause of hypoglycemia in patients who have yellow atrophy or other extensive diseases of the liver. These patients are gravely ill and have other signs of hepatic disease which are more obvious than the hypoglycemia.

Adrenal Insufficiency or Addison's Disease: Deficiency of the adrenal cortex may cause a hypoglycemia which may readily be mistaken for hyperinsulinism. The clinical features of Addison's Disease should avoid any pitfalls here.

Simmon's Disease or Hypophyseal Cachexia: This is a rare disease and is due to destruction by atrophy or degeneration of the anterior lobe of the pituitary gland. The hypoglycemia in this disease is a relatively unimportant feature of the disease when contrasted with the symptoms characteristic of senile decay.

Tumors: Extensive destruction of the anterior lobe of the pituitary gland; tumor growth may result in disturbances in the regulation of the blood sugar level. The symptoms produced by tumors of the pituitary are diagnostic and the hypoglycemia is but a small part of the disturbance.

Hypothyroidism: Hypoglycemia even of a mild degree is an uncommon finding in patients suffering from hypothyroidism. The predominating features of this disease should simplify the differential diagnosis.

Disorders of the Nervous System: Functional Disturbance of the Sympathetic Nervous System: Increased carbohydrate tolerance with, at times, actual hypoglycemia accompany certain disturbances of the sympathetic nervous system, especially vagotonia, neuro-circulatory asthenia, and various neuroses. These disturbances of the nervous system are likely to be confused with hyperinsulinism.

Organic Diseases of the Nervous System: Hypoglycemia complicates several disturbances of the central nervous system, though hypoglycemia is more common when the base of the brain is involved. Low blood sugar values are sporadically seen in various psychoses (e.g. schizophrenia), in subdural hemor-

rhage, and in general paralysis. The hypoglycemia is apparently due to disturbed nervous control of the glycogen deposits. Attacks of epilepsy may be and are confused with those of hyperinsulinism. Epilepsy does not fulfill the criteria necessary for the diagnosis of the latter. The attacks bear no relationship to meals and are not precipitated by fasting or exercise and the blood sugar is within the normal range during the attacks.

Miscellaneous Causes of Hypoglycemia: Exercise, if prolonged as in marathon races, causes low blood sugar levels to the degree of hypoglycemia, but not severe. Lactation and renal glycosuria and severe degrees of undernutrition such as observed in anorexia nervosa also may become complicated by hypoglycemia. In each instance the underlying cause is a deprivation of nourishment of the organism. Increased food intake in frequent feedings corrects the disturbance.

SUMMARY AND CONCLUSIONS

Hyperinsulinism is a rare disease. It may be caused by: (1) Benign adenoma, (2) Islet cell adenomatosis, (3) Malignant islet cell tumors, (4) Metastasizing islet cell tumors. One hundred eighty-four cases have been reported in the literature, and this case has been added. All other causes of hypoglycemia must be ruled out before a diagnosis of hyperinsulinism is made. The presence of multiple tumors must be borne in mind, since 10% to 15% may be multiple. The surgeon must be prepared to carry out procedures all the way from dissecting a small discrete nodule in the pancreas, to total pancreatectomy, since medical treatment is of no avail.

REFERENCES

1. Kuffel, M. J., Foster, D. P., and Lowrie, W. L.: Hyperinsulinism with Hypoglycemia relieved by Removal of Pancreatic Tumor, *Jour. D. D.*, 1947, 279, Sept.

2. Rynearson, E. H.: Some Clinical Disturbances of the Endocrine Glands. *J. Michigan State Med. Soc.*, 1947, 46, 318-321, March.
3. Whipple, A. D.: Surgery of the Pancreas, *N. E. J. Med.*, 226, 515-526, March 26, 1942.
4. Harris, Seale: *J. A. M. A.*, 83, 729 (1924).
5. Wilder, R. M., Allan, F. N., Power, M. H., and Robinson, W. L.: *J. A. M. A.*, 89, 348, 1927.
6. Howland, G., Campbell, W. R., Maltby, E. J., and Robinson, W. L.: 93, 674, 1929.
7. Duncan, G. G.: Diseases of Metabolism, 2nd Ed., *J. A. M. A.*, Saunders, 1947.
8. Whipple, A. O.: *J. Internatl. de Chir.*, 3, 237, 1938.
9. Lopez-Kruger, R., and Dockerty, M. B.: Tumors of the Islets of Langerhans. *Surg., Gyn. and Obs.*, 1947, 85, 495-511, Oct.
10. Agustsson, H., Tudor, R. B., and Chisholm, T. C.: Hypoglycemia Associated with Hyperplasia of the Islet of Langerhans, *Jour. Lancet*, 1947, 67, 190-192, May.
11. Callaway, E.: Subtotal Resection of the Pancreas of An Eight-Year-Old Child for Hyperinsulinism. *J. Med. A.*, Georgia, 1946, 35, 164-165, June.
12. Carpenter, L. C., Jr.: Hypoglycemia, Secondary to Islet Cell Adenoma of the Pancreas. *J. Michigan State Med. Soc.*, 1946, 45, 70-72, Jan.
13. Clyne, R. M., Leeds, H. M., and Cowdery, J. S.: Spontaneous Hypoglycemia Due to Islet Cell Tumors of the Pancreas. *N. Y. State Jour. Med.*, 1945, 45, 405-409, Feb. 15.
14. Dickie, A. M.: Adenoma of Islets of Langerhans. *Brit. M. J.*, 1946, 2, 817, Nov. 30.
15. Good, L. P.: The Origin and Growth of an Adenoma of the Islands of Langerhans. *Surgery*, 1945, 18, 159-171, Aug.
16. Haines, N.: A case of Islet Cell Tumor of Pancreas. *J. Path. and Bact.*, 1946, 104.
17. Holmes, J. M., Sworn, B. R., and Edwards, J. L.: Paroxysmal Hyperinsulinism Due to Islet Cell Tumor of the Pancreas. *Brit. J. Surg.*, 1946, 33, 330-35, April.
18. Isaacs, H. E.: Hypoglycemia Due to Insular Adenoma of Pancreas. *J. A. M. A.*, 1946, 130, 404-406, Feb. 16.
19. Maxeiner, S. R., and Bundy, H. E.: Islet Cell Tumors of the Pancreas, *Surgery*, 1945, 18, 171-177, Aug.
20. Nordland, M.: Islet Cell Tumor of the Pancreas. *Minnesota Med.*, 1946, 29, 609, June.

Tuberculosis is such an insidious disease that no physician can deny the existence of it without adequate roentgenologic study. All patients, regardless of their complaints, should have the benefit of chest X-ray examinations. This is particularly true in conditions such as diabetes and pregnancy where a higher prevalence incidence of tuberculosis is found. Moreover the taking of a single roentgenogram may not be enough, and so, with persisting symptoms or a suspicious lesion, the X-ray may need to be repeated. —*J. Mich. State M. Society*, Kenneth J. Feeney, M. D., November, 1949.

In many of our communities the large number of recalcitrant patients constitute a major problem in tuberculosis control. Surveys indicate that in some localities 35 per cent of those discharged from sanatoriums have signed out against advice. As possible sources of contagion these uncoöperative patients pose grave problems for all agencies engaged in public health work. Not only are they a menace to their own families and the community but also to themselves since interruption of treatment usually results in exacerbation of their condition. — Thomas N. Sheen, M. D., *Nat. Tuberc. Bull.*, October, 1950.

ANEURYSM OF LEFT CARDIAC VENTRICLE

C. LAWRENCE HOLT, M. D., Portland, Maine

One rarely has the opportunity to observe by roentgenography the development of an aneurysm of the left ventricle subsequent to coronary occlusion with myocardial infarction. Ventricular aneurysm follows myocardial infarction in 7-8% of instances³ although figures as high as 38% have been reported.¹

The diagnosis may be suspected on clinical grounds but cardiac fluoroscopy and roentgenography offer the most substantial aids in definite diagnosis. Roentgenkymographic examination may reveal an important paradoxical pulsation of the aneurysmal site, although a similar finding may be recorded in cases with thinning of the ventricular wall without aneurysmal dilatation.⁷ There are no truly typical electrocardiographic findings although suggestive findings include right axis deviation, deep S_2 and S_3 , persistent elevation of RST segments in unipolar precordial electrocardiograms, tendency for QRS complex of aVr to be directed upward because of the unusual cardiac rotation and a downward direction of the major deflection in L I.^{4, 6, 9, 5, 2}

Report of Case.

History: Mr. E. C. L., a 46-year-old white widowed male of French-Canadian extraction, was admitted to Mercy Hospital at 10.35 A. M. on December 5, 1950. On September 1st, patient had sudden onset of a crushing type pain in left shoulder, arm, and left anterior chest while shaving. A physician diagnosed "angina" and prescribed nitroglycerin which gave no relief. A second physician saw the patient and hospitalized him because of "pneumonia," a diagnosis allegedly corroborated by roentgenographic findings. (Fig. 1) The patient continued to have severe episodes of pain in the shoulder, arm, and chest occurring by night and day, and were definitely aggravated by any activity. After leaving the hospital, further medical advice was sought because of the previously described pain, and also because of the development of a painful, stiff neck, pain in right shoulder and upper arm, episodic "pleuritic" like pain in left lower chest, cough, severe dyspnea, orthopnea and paroxysmal nocturnal dyspnea.

An electrocardiogram during the first week of November was reported as being in accordance "with a heart attack." Fluoroscopy at this time revealed fluid at left lung base, and patient was rehospitalized with a diagnosis of "pleurisy with effusion." Roentgenogram of the chest substantiated the fluoroscopic finding. The chest was tapped and an unknown amount of "straw-colored liquid" was aspirated on two occasions without giving any symptomatic relief. A roentgenogram taken after the aspiration of fluid revealed definite bulging in region of left ventricle,



Figure 1

but this was not commented on in the official report of the roentgenologist. (Fig. II)

Because of lack of improvement, patient sought advice of the writer and was admitted to the Mercy Hospital.

Enquiry of *past health* revealed no knowledge of childhood disease. Tonsillectomy in 1941, at which time he was told he had "joined kidneys." Had been treated for "severe" high blood pressure for a number of years. No history of trauma or transfusions. Denies history of venereal infections.

Habits: Bowels regular. Appetite poor. Sleeps poorly because of restlessness and pain. Smokes one-half package of cigarettes daily. Denies use of alcohol.

Family history: Father died at age of eighty of "diarrhea." Mother died at age sixty of heart disease and flu. One brother died at age fifty-six of cerebral "hemorrhage." One brother died at age fifty-two of cerebral "hemorrhage" and question of cancer. Four sisters, aged fifty to fifty-six, living and well.

Marital history: Wife died two years ago at Mercy Hospital of disseminated lupus erythematosus. One

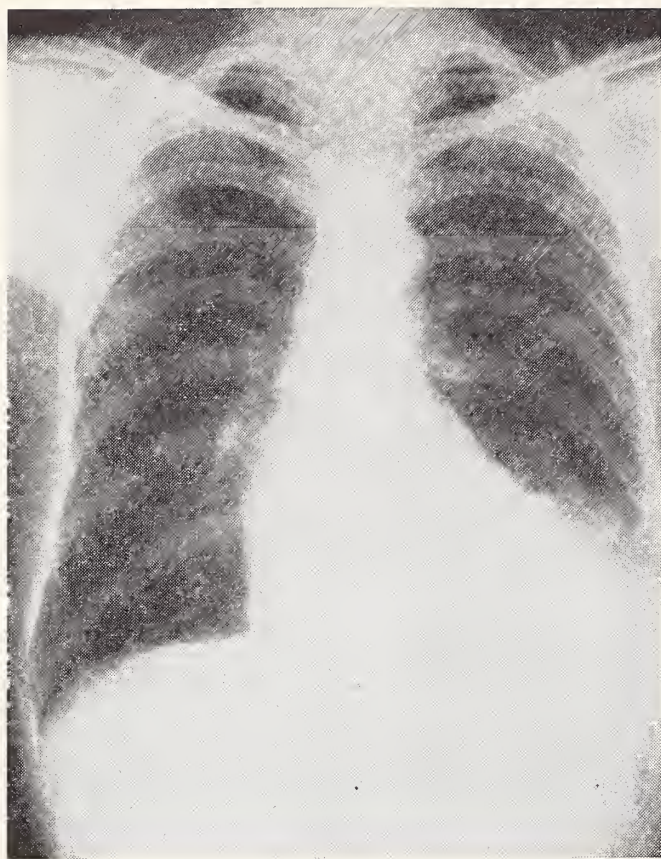


Figure II

daughter, twenty-one, two sons, aged eighteen and eight years, living and well.

Physical examination at time of entry to hospital: Height: 5 feet 6 inches. Weight: 110 pounds equals 50. kilos. Temperature: 99.2 F. Pulse: 100. Respiration: 20. Blood pressure: 120/90. Pulse pressure: 30 mm. Hg. Patient appeared pale and wan. Evidence of obvious weight loss was present. Perspired freely and breathed with difficulty. There was slight cyanosis of lips but no neck vein engorgement. Pupils were equal and reacted to light and accommodation.

Retinal vessels showed moderate arteriosclerotic changes with increased tortuosity, arterio-venous nicking and increased light reflexes. Nerve heads normal. Maculae normal. There were poor motions of the diaphragms on percussion. Breath sounds were absent at left lung base and there was a dull percussion note postero-laterally. Crepitant rales were heard over this area and at the right base.

The heart rate was one hundred with regular rhythm. The heart was definitely enlarged to left on percussion, especially in fourth and fifth interspaces. The apical impulse was forceful and diffuse and occupied a large area of the fourth and fifth interspaces. Heart sounds were of poor, flabby quality. M_3 was loud and "hollow" and took part in an obvious protodiastolic gallop rhythm. Both dorsalis pedis pulsations were present. Examination of abdomen re-

vealed no masses or spasm. Rectal examination revealed a tight cicatrized anal ring. The reflexes were equal and one plus.

Laboratory work revealed:

Urine: Smallest possible trace of albumin; no sugar; 1-2 leucocytes/HPF; rare red cells, few epithelial cells. R. B. C. 3,730,000. Hgb. 72%. Color index 0.9. W. B. C. 9,100 with 64% polys; 35% lymphs; 1 Eosinophile. Sedimentation rate 36 mm./hr.-corrected Wintrobe. Hinton negative. Stools negative for occult blood. Prothrombin concentration 100% of normal control. An electrocardiogram was interpreted as revealing sinus tachycardia, horizontal position of heart, and the residual of a relatively recent anterior myocardial infarction with rather extensive involvement.

A roentgenogram of the heart and lungs was taken. (Fig. 3) In comparing this film with previous ones taken in another city, there was an apparent gradual increase in the size of the heart shadow, with the development of a distinct elliptical bulge in the left border, which was best brought out in the slightly right anterior oblique film. The bulge showed a decreased amplitude of pulsation. There was some density at the right base, which might have been due to an infarct or possibly passive congestion. The fluid at the left base had almost disappeared.

The presumptive clinical diagnosis, with the im-

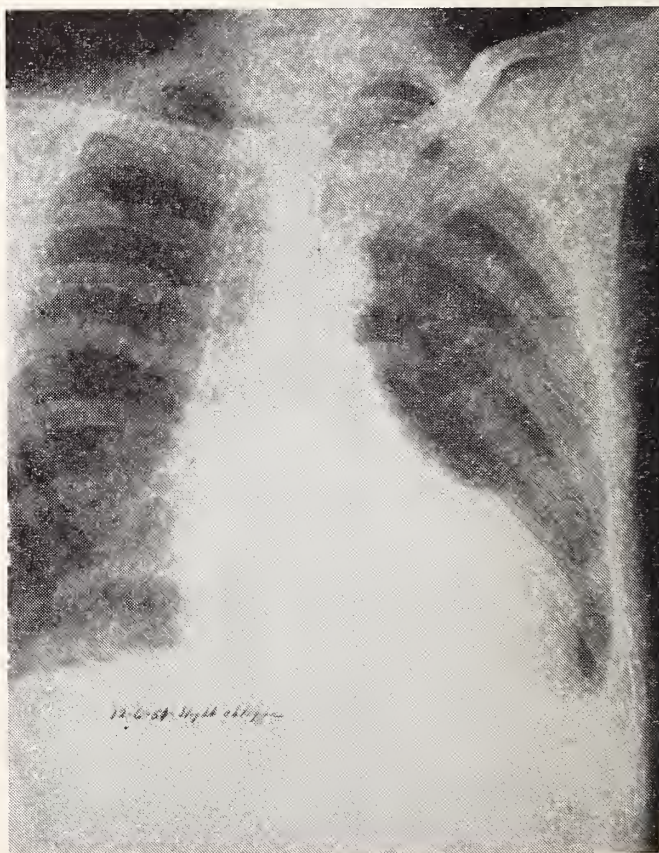


Figure III

portant electrocardiographic tracing and roentgenologic findings, was (1) myocardial infarction, secondary to extensive coronary artery thrombosis; (2) complicated by multiple pulmonary emboli and (3) aneurysm of the left ventricle; (4) post-infarction painful neck and shoulder syndrome (periarthritides); (5) essential hypertension was present by history. The pulmonary emboli were considered to take origin in the heart itself, either from a post-infarction mural thrombus or from an intra-atrial or intraventricular clot. There was no evidence of peripheral phlebitis or phlebothrombosis. The aneurysmal sac was thought to include only the left ventricle, hence the origin of a "paradoxical pulmonary" embolus in such a sac seems unlikely unless an interseptal defect was present. There was no evidence of such a defect.

Course in Hospital:

Dicumarol was started immediately and administered daily for thirty-five days, the prothrombin concentration being maintained between extremes of ten percent and twenty-seven percent of normal. Although no evidence of gross failure was present, purodigen in full dosage was started on 12/26/50, in an effort to relieve the shortness of breath which was present in spite of complete bed rest. The purodigen was discontinued after three days because of persistent nausea.

At this time, careful observation of the apical impulse revealed a definite retraction of the center of the diffuse impulse area near the left nipple with the usual external thrust of the remainder of the area during systole. A paradoxical retraction during systole was thereby established. The heart sounds remained of poor quality and the gallop rhythm persisted with a loud third sound present at the apex. General reduplication of all sounds was heard. On 12/22/50, a portable film revealed the heart to be smaller in size, and there was almost complete clearing of the processes at the right and left bases. The patient complained of a rapid beating of his heart on 1/1/51. His radial pulse was found to 94/min. and his apical rate 140/min. An electrocardiographic tracing revealed his auricular and ventricular rates to be 108/min., except for a short time interval during the period that the V₁ and V₂ leads were recorded.

At this time, the rate and rhythm changed. The ventricular rate went as high as 168/min. The rhythm suggested auricular flutter with a one to one block, although ventricular tachycardia could not be dismissed. This tracing suggested an extension of the anterior myocardial infarction because of an increased elevation and covering of St in V₂, V₃, V₄, V₅ and elevated St in V₆. These changes, however, could be accounted for by a temporary ischemia due to insufficient coronary blood flow resulting from the greatly diminished period of diastole in the face of a severe tachycardia. The rhythm and rate were made

normal within a short period by administering six (6) grains of quinidine sulphate. During the patient's hospital stay, he complained daily of severe "rheumatic" like pain in his neck, shoulder, thoracic spine and upper arms. He also complained of pain in his left chest that did not suggest the discomfort of coronary insufficiency. He was discharged to his home by ambulance on his thirty-fifth hospital day with instruction to take aspirin grains IX daily, purodigen 0.1 mg.; quinidine sulphate grains IX; low sodium diet. It was intended that the aspirin would help relieve his "arthritic" pain, and also help to keep his prothrombin concentration low.

Comment: The development of aneurysmal dilatation of the ventricular wall following myocardial infarction is not rare. The case presented is not unusual except for the presence of multiple pulmonary infarctions complicated by pleural effusion, the development of the aneurysm in serial roentgenograms, and the development, under daily observation, of a systolic retraction of the center of the cardiac impulse area suggesting the formation of strong pericardial adhesions. Schwedel reports the occurrence of such adhesions in one-fourth of his cases.⁸ The occurrence of gallop rhythm and flabby heart sounds in the presence of diffuse, strong, pulsations, of the anterior chest wall is frequently observed in cases of ventricular aneurysm. Cardiac arrhythmia, frequently ventricular tachycardia, are prone to develop. The persistence of RST elevation in the precordial leads is suggestive of an antero-apical ventricular aneurysm.⁶ With particular reference to the case at hand, such persistent elevation may have been due to an actual extension of infarction, although this does not seem likely.

Summary: A case of extensive antero-lateral myocardial infarction followed by aneurysmal dilatation of the ventricle is presented.

BIBLIOGRAPHY

- (1) Applebaum, E., and Nicolson, A.: American Heart Journal, 10:662, 1935.
- (2) Eliaser, M., Jr., and Konigsberg, J.: Arch. Int. Med., 64:493, 1939.
- (3) Friedberg, Charles K.: Diseases of the Heart, Philadelphia and London, W. B. Saunders Company, 1950, Page 459.
- (4) Goldberger, E., and Schwartz, S. P.: Am. J. Med., 21:243, 1948.
- (5) Myers, G. B., Klein, H. A., and Hiratzka, T.: Am. Heart J., 36:838, 1948.
- (6) Pipilis, G. A., and Wasika, P. H.: J. A. M. A., Vol. 145, Page 147, 1951.
- (7) Schwedel, John B.: Clinical Roentgenology of the Heart, New York, Paul B. Hoeber, Inc., 1946, Page 97.
- (8) Schwedel, John B.: Clinical Roentgenology of the Heart, New York, Paul B. Hoeber, Inc., 1946, Page 95.
- (9) Wilson, F. N., Rosenbaum, F. F., and Johnson, F. D.: Advances Int. Med., 2:1, 1947.

IDIOPATHIC DILATATION OF THE ESOPHAGUS (Achalasia, Cardiospasm)

Report of a Case

S. FRANK FOX, M. D., Portland, Maine

In the little understood condition of idiopathic dilatation of the esophagus, sometimes called achalasia or cardiospasm, the segment of esophagus just above the cardia is anatomically narrowed and relatively atrophic; the lumen is considerably smaller than that of the normal esophagus and the wall is abnormally thin. Rodney Maingot¹ describes cardiospasm as dilatation, hypertrophy and lengthening of the esophagus associated with nonorganic obstruction of the cardia or the lower 3-6 cm. of the esophagus. It accounts for about 20 per cent of cases of dysphagia, occurs twice as commonly in females as in males, and no age is exempt. The severity of the condition may vary from a transient recurring dysphagia to a permanent closure of the esophageal orifice at or 2 or 3 inches above the stomach as fixation and extension of the original spasm of musculature occurs.

Much has been written concerning the etiology of the condition. Eggers in an excellent review discussed various opinions regarding etiology. Plummer and Vincent,² however, who have had an extensive experience with this condition, state positively that it is not a neurosis. It is possible that the psychogenic factors are secondary to the underlying condition. One of the very interesting observations in connection with this condition is that although marked obstruction exists, which eventually leads to enormous dilatation of the esophagus, no gross anatomic change can be demonstrated below the dilatation either during operation or at autopsy.

Many suggestions have been made to explain the obstruction; one of the oldest is that we are dealing with a sphincter spasm. However, neither at operation or autopsy has such an anatomic sphincter been demonstrated. No thickening similar to the tumor found in hypertrophic pyloric stenosis has been visualized.

In contrast to the theory of spasm of a sphincter at the lower end of the esophagus producing the symptoms of so-called cardiospasm, Jackson³ believes cardiospasm is an erroneous term. He states spasm in these patients is never greater than the minimal normal. He holds muscular and tendinous prolongations of the crura, which surround the esophagus, to be responsible for normal closure and opening of the lower end of the esophagus. He calls this the diaphragmatic pinch-cock. According to his theory, it is the failure of this pinch-cock to open in the deglutitory cycle, and not any excessive spasm, that is the

chief etiologic factor in many cases of cardiospasm. Hurst⁴ also believes that the inability of the cardia to open, which is normally the last stage of the act of deglutition, is responsible for the dysphagia and the secondary dilatation and hypertrophy. He has applied the name "achalasia," which means inability to open, to this dysfunction, and attributes it to pathologic changes in Auerbach's plexus. This plexus is composed of ganglion cells and nerve fibers derived from the vagi, and is situated between the circular and longitudinal muscle coats. He states that the primary cause of the changes in Auerbach's plexus is unknown, but as the vagi contain the fibers which cause the sphincter to open, their degeneration results in achalasia. Rake⁵ has presented histologic evidence of the progressive degeneration of Auerbach's plexus, which is present in at least some cases of cardiospasm.

A voluminous literature on cardiospasm has accumulated, dealing chiefly with its etiology. Much of it is confusing. The whole question of the etiology of cardiospasm requires further study, for the isolated clinical and experimental observations are still so much at variance, that no definite conclusions can be drawn. However, evidence is accumulating and appears quite conclusive that the condition is due to a neuromuscular dysfunction resulting from pathologic changes in the vagi, and more particularly in Auerbach's plexus. What these changes are due to has not been determined. They may be of an inflammatory nature or the result of nutritional disturbance or avitaminosis. Recent investigations of cardiospasm have unearthed many facts that support the theory that nutritional and vitamin deficiencies play an important role in the etiology. It may be that all cases of achalasia are not due to the same etiologic factor, and, therefore, the inability to explain a particular case on the grounds of a nutritional or vitamin deficiency does not rule it out as an etiologic agent.

Whatever term is used for the condition, the diagnosis of the condition under consideration rests on finding a diffuse dilatation of the esophagus with obstruction at its lower end, but without anatomic stenosis demonstrable either at operation or at post-mortem examination. All other lesions have to be excluded from the discussion. Cardiospasm is second in frequency to carcinoma in producing symptoms of esophageal obstruction. The outstanding symptoms are pain, dysphagia and regurgitation. The onset may be sudden and intermittent at first but is usually

gradual with dysphagia as the only symptom. In other cases pain is the predominating symptom. Later there is regurgitation of food, a sense of fullness or pressure associated with substernal or epigastric pain and possibly anaemia and loss of weight. The pain may be increased by taking food or may be independent of deglutition. Often it is very severe and radiates. As the esophagus becomes more and more dilated, shortness of breath develops on exertion or on lying. The patient may have difficulty resting at night owing to the pressure of the overloaded esophagus and because the liquid contents leak out and spill into the larynx bringing on paroxysms of coughing. Aspiration may result and lead to pulmonary suppuration. Frequently there is loss of weight, which may assume alarming proportions.

In some cases differential diagnosis may be difficult. The onset of the dysphagia may be similar to that occurring with esophageal carcinoma. In many cases an important differential point will be that in so-called cardiospasm liquids are regurgitated, whereas semi-solid or solid foods pass readily into the stomach. In esophageal carcinoma the solid foods first meet obstruction and fail to pass, whereas liquids are tolerated until the later stages.

X-ray examination with barium swallow shows dilatation of the esophagus ending usually at the level of the diaphragm but sometimes at a higher level, in a smooth tapering constriction. This constant observation has given rise to the belief that there is a sphincter in the wall of the esophagus beginning at about the level of the diaphragm or that the diaphragm or its crura act as a pinch-cock at this point. Only very rarely has the esophageal dilatation been observed to extend to the anatomic cardia. Peristaltic waves are often observed on fluoroscopic observation and occasionally reverse peristalsis is present. In patients in whom the condition has existed for a long time, preliminary X-ray of the chest may show the straight border of a shadow of increased density extending into the lung field to the right of the cardia and upper mediastinal shadows. If this examination is made in the erect position a fluid level may be present in the superior mediastinum due to air and retained matter in the dilated esophagus. When barium is given to such a patient it is seen to float down in streams through the retained material. Only very little barium enters the stomach. In some cases of long

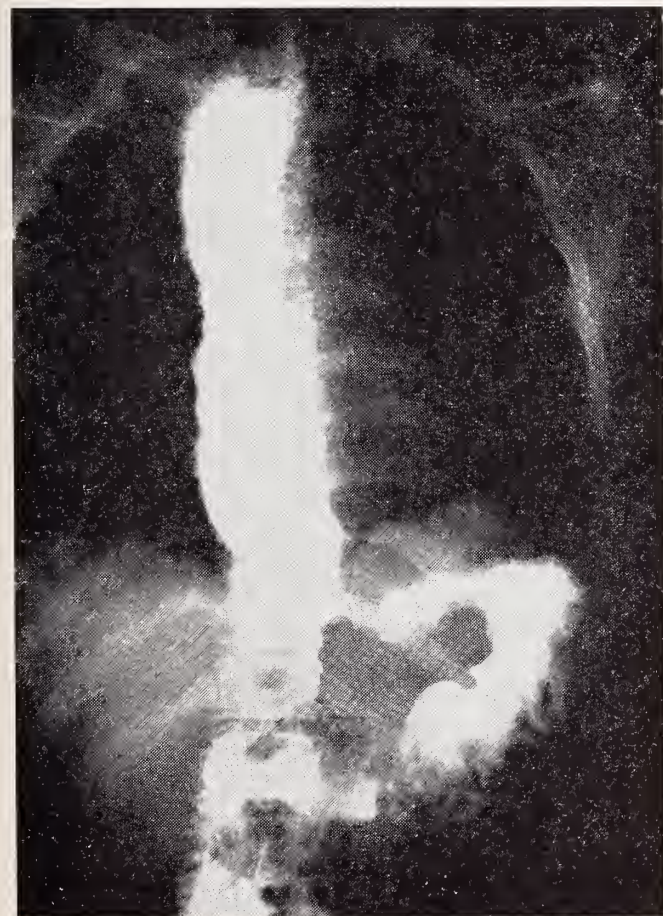


Fig. 1. 12/26/50

Left lateral oblique film of the esophagus taken before operation, showing marked dilatation of the esophagus above the cardia with narrowing and obstruction at the cardia.



Fig. 2. 2/19/51

Same view of the esophagus taken 7 weeks after operation, showing some recovery of muscle tone of the esophagus with decrease in dilatation and much more rapid emptying at the cardia and filling of the stomach.



Fig. 3. 2/19/51

Another view of the esophagus showing decrease in dilatation and recovery of muscle tone of the esophagus.

standing cardiospasm the esophagus becomes elongated and sacculated, producing an appearance simulating a diverticulum. Twenty-four hour retention in the esophagus is not uncommon. Actual diverticula may also develop as a result of pressure within the esophagus, causing bulging at weak portions of the wall.

Esophagoscopy is of great value in differential diagnosis and should be carried out whenever there is any question as to the cause of the obstruction. The walls of the esophagus usually look pale and flabby. In older cases, with retention, the esophagus is found to be filled with frothy liquid content which has to be evacuated before visualization is possible. In such cases the mucosa is congested and frequently ulcerated and the cardia may be difficult to locate. The passage of an esophageal sound over a previously swallowed silk thread may be more important in diagnosis than an esophagoscopy. It passes into the stomach with no more than the usual slight elastic resistance. Whereas in a patient with benign stenosis or carcinoma, a definite stricture can be detected.

The treatment of achalasia resolves itself to either

medical or surgical. Medical management with bland diet, antispasmodics, such as amyl nitrite, and psychiatry in conjunction with dilatations of the esophagus with a hydrostatic bag will cure or improve a large percentage of cases. If conservative methods fail, or dilatation is hazardous or not feasible or diagnosis is questionable, surgical treatment is indicated. Kay⁶ states that although many patients with cardiospasm receive symptomatic improvement for varied periods of time following instrumental dilatation of the esophagogastric junction, the benefit obtained is rarely complete or permanent. No evidence of reduction in the size of the esophagus following dilatation has ever been presented. In some patients the tortuosity of the esophagus prevents instrumentation and in others no significant improvement results from this therapy. Insofar as surgery is concerned, there have been two methods of approach, one by sympathectomy, and the other by esophagoplasty. B. A. Lubbers⁷ states that sympathectomy is permissible only when it has been demonstrated that opaque medium passes through the cardia after sympathetic block. Leriche was one of the first to perform bilateral infiltration of the splanchnic nerves and to note on fluoroscopic examination a decrease in esophageal dilatation by one-third and passage of opaque meal into the stomach. In 1935, Knight recommended sympathectomy for achalasia of the cardia; he resected the left gastric artery and vein and simultaneously cut the main trunks of the sympathetic system which run alongside these vessels to the cardia. Results were good at first, but poorer results were obtained later from the same operation. At present, this approach to the treatment of cardiospasm has been almost entirely abandoned in favor of esophagoplasty. The approach to the esophagus can either be trans-abdominal or trans-pleural, but because the trans-pleural approach affords better exposure of the esophagogastric junction, better mobilization of the lower esophagus and cardia of the stomach and, in turn, the construction of a larger aperture than would be possible through an abdominal incision, this approach is preferred. Two types of operative procedure are possible, one, a cardioplasty performed in a manner similar to the Finney pyloroplasty technic, the other in a manner similar to a Heineke-Mikulicz pyloroplasty technic. Sweet⁸ feels that the Heineke-Mikulicz is the most effective method, as measured by the uniformity and permanence of the relief of dysphagia. This method consists of a longitudinal incision through all layers of the constricted segment from a wide point on the esophagus above to a correspondingly wide point on the stomach below, followed by circumferential closure of the opening thus produced. This was the type of procedure performed on the case reported here.

CASE REPORT

No. 51,944, Mercy Hospital: Mr. S. M., age 27, was admitted to the hospital on December 17, 1950, with a chief complaint of cough, weight loss. On December 7, he was seen by his physician with an acute inflammatory process present in the left lung. These findings were checked by survey chest X-rays and an acute pneumonia was evident. He was treated at home with antibiotics, and this cleared up well, and he was admitted to the hospital 10 days later for further diagnosis and evaluation. He stated that for about 6 years he had never been able to feel food go into his stomach after eating. He stated that it felt as though the food would remain in his throat, and that he would not feel as though he had eaten. This would be followed by pain in the upper part of his chest which would last for several hours. Solid food or liquids made no great difference. He stated that his appetite had been poor for some time, and that he felt tired most of the time. He weighed 108 pounds on admission, and said that he had lost 52 pounds in the past three years, 18 of it in the past year. He said that three years ago he was esophagoscoped at the Philadelphia General Hospital, and had his esophagus dilated at that time. He obtained some relief from this, but it was only transient. He was later told at the same hospital that further dilatations would be dangerous, and that surgery was advised, which he refused. There was no abdominal pain, and bowel habits were normal. The remaining history was noncontributory.

Physical Examination: This revealed a well developed, very thin young male with no acute complaints. The abdomen was soft, no tenderness anywhere, there was marked loss of subcutaneous fat, no herniae present, the liver could not be felt. Rectal examination was negative. The remainder of the physical examination was negative.

Laboratory Data: The blood count and sedimentation time were normal, the urine and blood Kahn negative. B. M. R. was 28, but was not felt to be an accurate test. Blood cholesterol was 190 mg.%. Total serum proteins on admission 5.8%, with a normal ratio, and one week later were 6.2% with a normal ratio. X-ray of the chest the day after admission showed the inflammatory process which had been present on the survey film of December 7, to have entirely cleared. Fluoroscopic and X-ray examination of the esophagus and stomach showed a markedly dilated esophagus which was rather straight in outline, with little out-pouching. The esophagus con-

tained a large amount of non-opaque material, evidently due to retained food. The esophagus then tapered down to a narrow point and the emptying was spasmodic with much delay, only a small amount being present to outline the stomach.

Operation: The patient was operated on December 28, 1950, through a left trans-thoracic approach. The incision was made into the chest through the resected eighth rib. The left lung was retracted, the mediastinal pleura opened, and the lower end of the esophagus was mobilized. The diaphragm was then opened for a short distance and the esophago-gastric junction was well mobilized. A Heineke-Mikulicz type of esophagoplasty was performed, using silk sutures throughout. The diaphragm was closed, the chest closed with tube drainage and the lung re-expanded.

The post-operative course was entirely uneventful. He began to take liquids by mouth after 48 hours, soft diet on the fourth day, and regular bland diet on the sixth day, and he was discharged on the ninth day after operation.

The patient has been followed to date and he states that he now feels everything he eats going into his stomach. The dysphagia has entirely disappeared. He gained 13 pounds in weight in 6 weeks and feels much stronger. Repeat X-ray examination 6 weeks after operation showed only a little change in the appearance of the esophagus, but it is said that several months must elapse before much change is obvious.

SUMMARY

1. The literature on achalasia is reviewed, and the various clinical, etiologic, and surgical features of the lesion are discussed.
2. A case of achalasia in a 27-year-old male is reported with successful surgical correction.

REFERENCES

- (1) Maingot, R.: Postgraduate Med.: 5:351-360. May, 1949.
- (2) Plummer, H. S.: Diffuse Dilatation of the Esophagus Without Anatomic Stenosis (Cardiospasm). A report of 91 cases. J. A. M. A., 58:2013-2015, 1912.
- (3) Jackson, Chevalier: The Diaphragmatic Pinch-Cock in So-Called "Cardiospasm," Laryngoscope, 32, 139, 1922.
- (4) Hurst, Arthur F.: Achalasia. British Encyclopaedia of Medical Practice, Vol. 1, London, 1936.
- (5) Rake, G. W.: On the Pathology of Achalasia of the Cardia. Guy's Hosp. Reports, 7, 141, 1937.
- (6) Kay, E. B.: Surgical Treatment of Cardiospasm. Annals of Surgery, 127:1, 1948.
- (7) Lubbers, B. A.: Achalasia of Cardia and Sympathectomy: Year Book of General Surgery, 1950.
- (8) Sweet, R. H.: Thoracic Surgery: 1950.

A sanatorium must be an educational institution where the patient is taught and trained how to get

well and stay well.—*Calif. Med.*, Edward W. Hayes, M. D., December, 1950.

HYPERSPLENISM

An Unusual Case of Splenic Pancytopenia Secondary to Gaucher's Disease in an Adult*

WILLIAM C. BURRAGE, M. D., Portland, Maine

The functions of the normal spleen are becoming more readily understood and appear to be divided into two categories:¹ (1) phagocytic function — the mechanical removal of aged red cells, white cells, and platelets from the circulation; (2) regulatory function by splenic hormones with particular reference to the formation and delivery to the blood of the mature cellular elements of the bone marrow.

Continual study of patients with enlarged spleens and blood studies following splenectomy suggests that¹ the enlarged spleen acts in exaggerated fashion to regulate the growth and delivery of the red cells, the neutrophils, and the platelets at the bone marrow. This exaggerated reaction is associated with a variable degree and type of cytopenia and is termed hypersplenism. When the chief effect is inhibition on production or delivery of the white cells, a neutropenia results; when on the platelets, a thrombocytopenia; and when simultaneously on all elements, a pancytopenia results.

It is the purpose of this paper to report a rare form of hypersplenism — a splenic pancytopenia with non-hemolytic anemia secondary to Gaucher's disease in a middle aged adult.

Case No. 39539

This 63-year-old widowed housewife was admitted to the Mercy Hospital on October 27, 1948, with the chief complaint of severe progressive generalized weakness of two weeks' duration.

She had enjoyed good health until 19 months before admission when she had had a severe attack of gripe. At this time her local doctor discovered that her blood was "low." An X-ray of the chest was negative. She was given iron, parenteral liver and Vitamin B without improvement in her blood.

Sixteen months before admission a complete blood and bone marrow study was done by Dr. J. E. Porter, pathologist of the Maine General Hospital. He felt that "the patient had an aplastic anemia or more correctly a pancytopenia of unknown etiology. There is a slight tendency to maturation arrest of the myelocytic series, but nothing to suggest leukemia."

Following intensive parenteral liver therapy she seemed to improve somewhat and was able to do her own housework. Nine months before admission this patient had an upper respiratory infection which was

followed by increasing general malaise, tiredness, and weakness. Thereafter up to the time of her admission she stated that any type of activity resulted in rapid fatigue. The feelings of weakness which were occasionally accompanied by periods of mental confusion caused almost total disability. She had lost 48 pounds in the past 6 months. Except for anorexia there had been no localizing signs or symptoms on system review. There had been no bleeding or bruising tendencies, no hematuria, melana or jaundice.

For the past two weeks she had felt weaker than ever before and had had profuse night sweats. The family and personal past history was not contributory except for rheumatoid arthritis of both hands at the age of 48.

Physical examination revealed an acutely ill middle-aged woman with a temperature of 101.4°. There were signs of marked weight loss and generalized muscular wasting. The conjunctiva and mucous membranes were pale, but there was no icterus. The mouth showed a moderate glossitis and dehydration. The heart and lungs were negative. Blood pressure 148/80. Pulse 124. The abdomen showed moderate distension but no signs of ascites. The spleen was enlarged reaching 4 finger breadths below the left costal margin. There was definite left costovertebral tenderness. No other organs or masses were felt. There was no lymphadenopathy. Rectal examination was negative. Pelvic examination revealed tenderness in the left vault high up. The skin was clear and gray. No petechiae, telangiectases, or ecchymoses were found.

Laboratory examinations: The admission blood count reported a Hgb. 55%; rbc. 3.19; wbc. 4,260; polys 68%; lymphocytes 32%; platelets 240,000. The admission urine showed a slight trace of albumin; 8-16 wbc.; 3:4 granular casts, absent bile and urobilinogen positive. Blood chemistry—blood sugar 86, BUN 15 mgm. Total protein 5 gms. Blood studies—Hinton, Widal and Brucella agglutinations, 5 blood cultures, and 2 red cell fragility tests were negative. Reticulocyte count 0.4%. Bromsulphothalein test 12% dye retention, icteric index 7. Three stool specimens were negative for occult blood. A Streptomycin sensitive B. Coli was recovered from the urine.

An X-ray of the chest was negative. A barium enema revealed a few diverticula of the sigmoid without evidence of active inflammation. An abdominal plate showed distortion of the 3 upper lumbar vertebrae, which was felt to be due to an old healed frac-

* Presented for publication in the Mercy Hospital issue, MAINE MEDICAL ASSOCIATION JOURNAL, by William C. Burrage, M. D., F. A. C. P. (Associate). Courtesy staff of Mercy Hospital.

ture. A barium swallow for varices and upper gastrointestinal series was normal. The skull, pelvis, femur and humeri showed evidence of generalized bony demineralization. A sigmoidoscopy was negative. Therapy with penicillin and streptomycin was initiated on the third hospital day awaiting reports of the blood cultures.

Two days after admission her white count had fallen to 1800, 46% were polys, 54 lymphocytes, but no blast forms were seen. A bone marrow biopsy on the fifth hospital day was performed. The pathologist felt that "microscopically it was not sufficiently characteristic of leukemia even though a few blast forms were present. There is a hyperactivity of the erythrocytic series. It is my impression that this is a case of hypersplenism or Banti's syndrome."

Her condition became progressively worse and was associated with daily temperature elevations of 103-104°, in spite of antibiotics and liver treatment. On the tenth hospital day her red count had fallen to 2.1 million, the Hgb. 39%, the wbc. 3,350, 45% polys, 45% lymphos, 5% eosinophils, 5% monocytes, platelets 52,000. She was given 250 cc. transfusion twice daily five days with appreciable effect on the red count. No evidence of hemolysis could be determined.

An adrenalin test³ for primary hypersplenism was negative as follows:

	Rbc.	Wbc.	Hgb.	Platelets
Control	2.31	1500	44	51,000
5" (after 0.5 cc. adrenalin sc.)	2.52	4850	48	52,000
10"	2.50	2850	48	
20"	2.43	1950	46	

Damashek¹ feels that this test had failed in his hands to show well-defined or conclusive results.

One consultant felt a therapeutic irradiation of the spleen might help in the diagnostic separation of hypersplenism from Banti's syndrome. One dose was attempted the day before the patient succumbed. However, the patient's condition rapidly worsened and her temperature rose to 106° prior to death on the 22nd hospital day.

The discharge diagnoses were pancytopenia, cause unknown, and terminal bronchopneumonia.

An autopsy performed by Dr. Franklin F. Ferguson of the Maine General Hospital revealed the following gross anatomic diagnoses:

- (1) Bilateral basal pneumonia, pleural effusion and pleuritis.
- (2) Hepatomegaly and marked splenomegaly with infarction.
- (3) Hyperplasia of marrow substance of vertebrae and sternum.
- (4) Chronic cystitis and leiomyoma of the uterus.

An important abnormality was noted on attempting to obtain a section of vertebral marrow. The patholo-

gist found that the bone was markedly thinned out, and that the marrow substance seems to have almost replaced the entire vertebrae. A similar replacement was found in the sternum.

The microscopic examination of sections of the spleen, lymph nodes and bone marrow were most revealing:

Spleen: The red pulp is congested with red cells and contains numerous fibrin strands with some proliferation of fibroblasts. The Malpighian corpuscles are poorly defined. In some sections infarction with necrosis and fibrin deposition can be seen, but the only cellular elements are red blood cells, and occasional lymphocytes. Fat stains show occasional fat laden macrophages.

Lymph nodes: All the lymph nodes present essentially the same picture appearing somewhat edematous, and showing relatively few lymphocytes. There are large numbers of cells resembling macrophages, in which the cytoplasm is pale, and the nucleus eccentric in position. In most instances such cells have phagocytosed red blood cells, and a few have phagocytosed leukocytes. Special fat stains of the nodes show some of these cells to contain fat globules.

Bone marrow: The sections show a fairly abundant cellular marrow in which there is evidence of both myeloid and erythroid activity as well as quite numerous red blood cells. The most distinctive feature, however, is the presence of large cells from 20-40 microns in diameter, round or oval and usually possessing a small eccentrically placed nucleus, the cytoplasm of which stains very faintly with eosin, in which some small vacuoles and many fibrils can be made out, which are thought to resemble Gaucher's cells.

Although the Gaucher's cells are not found in the spleen in this case, there is evidence of hypersplenism in the marked erythrophagocytosis which appears to be the mechanism of the anemia.

COMMENT

According to Wintrobe,² Gaucher's disease is a rare chronic familial disorder characterized clinically by splenomegaly, skin pigmentation, pinguiculae of the sclera and bone lesions.

The pathogenesis is considered to be a disorder of lipid metabolism, in which there is a deviation of the intracellular metabolism of the reticulum cells and histocytes, so that a cerebrosidekerasin is formed and stored there in an abnormal degree.⁴ Many of the symptoms are due to the enlargement of the organs of the reticuloendothelial system, and encroachment on the blood forming tissue and bone structure.

Groen⁵ reports 89 cases occurring in 31 families. He concludes that the mutation of Gaucher's disease once established, is transmitted as a single dominant

MEDICAL CONFERENCE

Edited by FRANCIS J. WELCH, M. D., Portland, Maine

1. Presented by: GISELA K. DAVIDSON, M. D.

Subject: Periarteritic Nodosa

A 44-year-old married housewife with a history of pain and swelling of knees in 1948. Tonsillectomy performed in January, 1949, with disappearance of joint pain. Laryngitis, cough and hemoptysis started in January, 1950, after the patient had remained well in the interim. X-ray showed a soft, exudative lesion in the left apex and upper lobe. Patient was given streptomycin from March 1, 1950, to April, 1950, receiving a total of 42 grams, a full course.

Repeated supta examination and gastric washings while in a tuberculosis sanatorium, but was discharged when she developed generalizing aching numbness of fingers and toes, and conjunctivitis.

Admitted to the New England Medical Center where urine showed a low specific gravity with many red cells, hyaline casts and albumin.

Blood revealed hemoglobin 62% ; RBC. 4,000,000 ; WBC. 13,000-17,000 ; high polymorphonuclear count with 2 to 7 eosinophils. Total protein 6.4 gram %. Sedimentation rate high on all occasions. She showed extensive neurological findings. Petechiae of finger tips. Muscle biopsy revealed periarteritic nodosa. X-ray of lung still consistent with tuberculosis.

Patient expired and the pathological report stated that lung lesions were typical of periarteritic nodosa. Prior to death she was placed on ACTH 50 mg. every 8 hours with clinical improvement. Temperature decreased, gain in weight, urine improved, appetite increased. Returned to Maine, when she began a downhill course in spite of ACTH.

General statements: 75% are male ; spontaneous remissions are frequent with 10% "recovery." Gradual onset, low fever, malaise and weakness. Symptoms depend on arteries involved : small and medium-sized arteries involved with inflammatory reaction around vessels. Kidney involved in highest percentage of cases, then heart, then the spleen and liver. If skin is primarily involved the outlook is better with a 30% remission.

Etiology is unknown, some people consider it a hypersensitivity associated with collagen disease. Can reproduce the lesion in a rabbit by injecting horse serum. Similar pathology found in typhus and rock mountain spotted fever.

Symptoms and signs less than X-ray findings, in case of X-ray of chest.

2. Presented by: C. LAWRENCE HOLT, M. D.

Subject: Infectious Mononucleosis

Cases of infectious mononucleosis vary so in their symptomatology, clinical, hematological and immunological courses that the presentation of a few cases seems in order.

1. The first case is that of a 12-year-old girl with a history of onset of severe sore throat accompanied by fever, malaise and adenopathy. Eight days previously she had had a mild sore throat of forty-eight hours' duration. The WBC. count was elevated and atypical lymphocytes were seen. Three weeks after onset of first sore throat patient developed swelling and tenderness of the liver which persisted for a two-week period and was accompanied by abnormal thymol turbidity tests and elevated one minute Watson direct reacting serum bilirubin, but no clinical jaundice was present. At no time was the spleen palpable. The heterophile agglutination did not become positive until the fourth week of the illness.

2. A thirteen-year-old boy gave a history of sud-

den onset of chills, fever, malaise and vomiting. He was admitted to the hospital six to eight hours after onset of symptoms at which time examination revealed marked stiffness of the neck, inability to flex chin on chest and positive Kernig. Temperature was 104° orally. A tentative diagnosis of anterior poliomyelitis was made. Spinal fluid was found to be normal in all respects except for a slightly elevated pressure.

A lumbar puncture forty-eight hours after admission revealed normal pressure and normal chemistry, although evidence of meningeal irritation persisted for four days. On the third day definite but small glands appeared in the neck and both axillae and the abdomen was somewhat tense and tender, and it was considered that multiple mesenteric nodes were involved. One week after onset of present illness patient developed a mild sore throat. Atypical lympho-

Continued on page 132

EDITORIAL

The 97th Annual Session of the Maine Medical Association

Scientific Program

The 97th Annual Session of the Maine Medical Association will be held at the Poland Spring House, Poland Spring, Maine, June 17, 18 and 19, 1951.

Dr. Franklin F. Ferguson of Portland, Chairman of the Scientific Committee, has a really fine program scheduled for this event. Out-of-State speakers will include Dr. John W. Cline, President-elect of the American Medical Association, Dr. H. Bristol Nelson, Obstetrician, Boston Lying-In Hospital, Dr. E. S. Judd, Surgeon, Mayo Clinic, and Dr. Edward L. Howes, Surgeon, Columbia University College of Physicians and Surgeons, Drs. Charles F. Branch, William D. Cox and Ross W. Greene, of the Central Maine General Hospital, Dr. Forrest B. Ames of

Bangor, and Dr. Howard L. Apollonio of Camden will be included on the member speaker list.

The Medico-Legal Society will be in charge of the program, Tuesday afternoon, June 19.

There will be group conferences, which will be conducted by Specialists for the particular benefit of the general practitioner — in fact, the entire program is planned to help the general practitioner.

This is a very brief sketch of what the program will be. The Program-in-Brief will be published in the May issue of the JOURNAL and the complete program in June, and a copy of the program will be mailed to each member of the Association prior to the meeting. Watch for it and make your reservation NOW.

House of Delegates

The House of Delegates will meet Sunday and Monday afternoon, June 17 and 18, during the annual session. There are important matters coming up for discussion at this meeting. It is important that every delegate be there — so if you are a delegate,

mark these two dates on your calendar now. All members of the Association are invited to attend these meetings and it is hoped that a goodly number will be present.

Woman's Auxiliary to the Maine Medical Association

Mrs. Edward W. Holland, President of the Woman's Auxiliary, has put in a very active and successful year. Her program for members of the Auxiliary and prospective members will be published in conjunction with the program for the annual session.

(This for the lady in your house — Plan to be present at the 97th annual session of the Maine Medical Association and bring your doctor husband with you.)

Remember

The dates — June 17, 18 and 19.

The program — in Brief in the May issue of the JOURNAL: complete in the June issue of the JOURNAL: by mail in an envelope specially marked so you can't miss it.

The House of Delegates — Sunday and Monday afternoon, June 17 and 18.

To make your reservations at the Poland Spring House today.

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elmore, M. D., Dixfield

Penobscot

President, George I. Higgins, M. D., Newport
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, John A. Caswell, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larsen, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Hancock

The 255th meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, Maine, on March 14th.

The meeting was opened at 8.00 P. M. with fourteen members present. The minutes of the last meeting were read and approved.

Dr. Donald Shotten of the New England Medical Center, gave a very comprehensive talk on Chemotherapy of Malignant Diseases. The formal talk was followed by an informal discussion of the subject.

JOSEPH H. HANSON, M. D.,
Secretary.

Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Augusta House, Augusta, Maine, on February 15, 1951. There were twenty-six members and guests present.

In a brief business session the record of the last meeting was read and approved. Dr. Francis H. Sleeper, Vice President, presided in the absence of President Harlow.

Brig. Gen. Spaulding Bisbee spoke on Civil Defense, followed by remarks by his State Staff members, Dr. Charles W. Steele of Lewiston, and Dr. Clark F. Miller of Auburn. Gen. Bisbee told the group that Washington thinking has reached the point where it is not a question of will the Russians attack, but when. Civil Defense is getting ready; a matter of mutual state and regional organizations.

Dr. Miller told us that there is no defense if you are exposed to the blast. He outlined various radiation injuries and means of treatment.

Dr. Steele gave a comprehensive outline of the defense scheme of action from the first aid station up through the administrative set-up.

A. H. MORRELL, M. D.,
Secretary.

Washington

A regular meeting of the Washington County Medical Society in conjunction with the St. Croix Medical Society was held Tuesday, April 3, 1951, at the Queen Hotel, St. Stephen, N. B., with eighteen members and guests present.

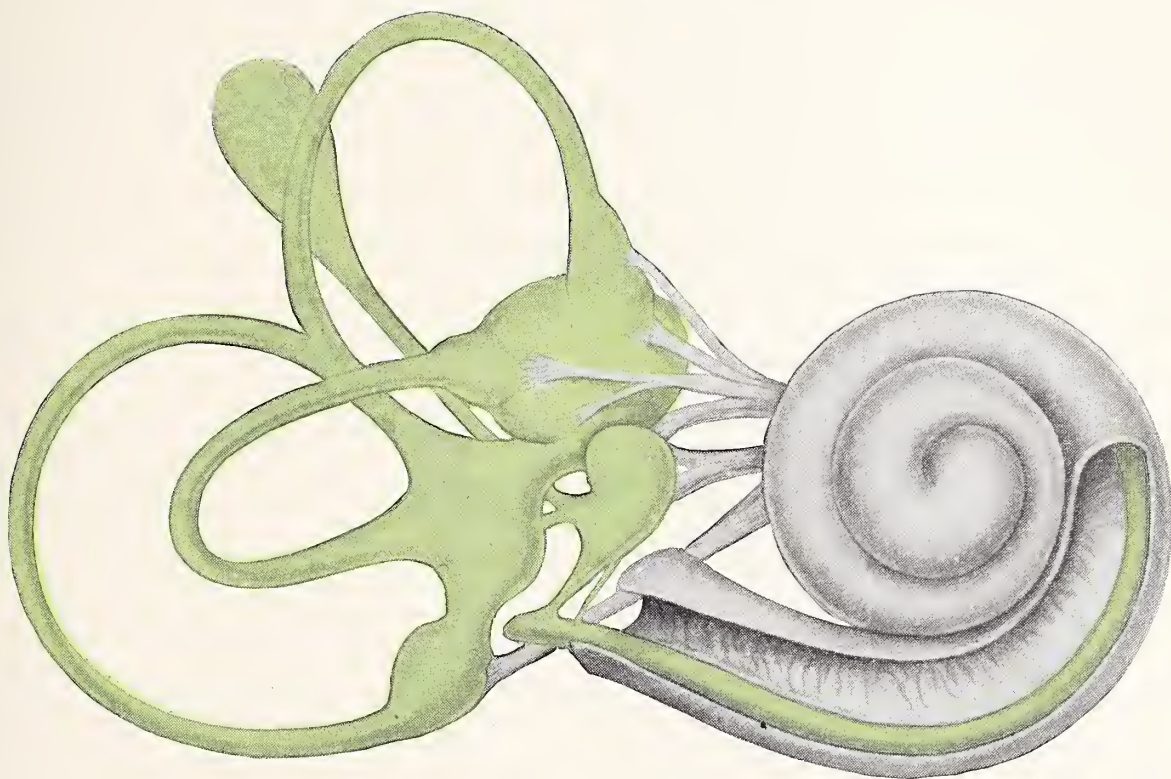
Dr. Herbert S. Everett of St. Stephen, President of the Washington County Medical Society, presided at a business meeting. In the absence of Dr. Norman Cobb, Dr. Oscar F. Larson of Machias was elected delegate to the Maine Medical Association and Dr. Robert B. MacBride of Lubec, 1st alternate. The Blue Cross-Blue Shield plan was brought up for discussion and it was voted to instruct our delegate to vote in favor of having the whole matter brought up before the Maine Medical Association meeting in June. The report of the activities of the Civil Defense Chairman, Dr. O. F. Larson of Machias was read and accepted.

Dr. Everett invited the Washington County Medical Society to be guests of the New Brunswick Medical Association at their meeting in St. Andrews in September.

Following an excellent dinner, Dr. Esmond Stiles, of the St. Croix Medical Society introduced Dr. S. Jameson Martin, assistant surgeon, Montreal General Hospital, who spoke on Cancer of the Breast. Dr. Martin covered the subject from the viewpoint of the general practitioner, emphasizing diagnosis and bringing out various points by means of slides. Dr. Martin said that early diagnosis and early treatment as yet offered the only permanent cures. He spoke against the use of mastectomies for treatment of chronic cystic mastitis and also against radical mastectomies if the frozen section was in doubt. This was followed by considerable discussion.

It was voted to hold the next meeting in Lubec, Wednesday, June 13.

KARL V. LARSEN, M. D.,
Secretary.



Detail of the Labyrinthine Structure

"The prophylactic value of Dramamine was conclusively demonstrated among 170 passengers who volunteered the information that they were unusually susceptible to motion sickness. . . . There was complete relief (freedom from any signs or symptoms of airsickness) in 152 cases or 89.5 per cent;"

—Tuttle, A. D.: *Special Breakdown of Case Histories*, presented at the Airlines Medical Directors Association Meeting, New York, N. Y., Aug. 28, 1949.

DRAMAMINE® Brand of Dimenhydrinate

For the prevention or treatment of motion sickness caused by automobiles, streetcars, ships, planes, trains and other vehicles.

Supplied in 50 mg. tablets and in liquid form.



RESEARCH IN THE SERVICE OF MEDICINE

SEARLE

WOMAN'S AUXILIARY TO THE MAINE MEDICAL ASSOCIATION

Annual Meeting Woman's Auxiliary to A. M. A.

A few more months, and the members of the Woman's Auxiliary to the American Medical Association will be arriving in Atlantic City, New Jersey, for their Annual Convention, June 11-14.

Have you made your reservations? If not, send your request *at once* to Dr. Robert A. Bradley, Chairman, A. M. A. Housing Bureau, 16 Central Pier, Atlantic City, New Jersey.

NEWS AND NOTES

State of Maine Board of Registration of Medicine

Adam P. Leighton, M. D., 192 State Street, Portland, Maine, Secretary.

List of physicians licensed in the State of Maine, March 14, 1951.

Through Examination

Dr. J. C. Guynemer Cyr, Grand Falls, N. B.

Dr. Roger L. Dionne, The Presbyterian Hospital, New York City, N. Y.

Dr. Richard V. Duffey, Eastern Maine General Hospital, Bangor, Me.

Dr. Raymond D. Higgins, Maine General Hospital, Portland, Me.

Dr. Eric B. Howell, 2060 Belvoir Blvd., Cleveland 21, Ohio.

Dr. Robert B. Stewart, III, Maine General Hospital, Portland, Me.

Through Reciprocity

Dr. Edward T. Brewer, St. Mary's General Hospital, Lewiston, Me.

Dr. William R. Bunge, 205-4th Street, Laurel, Md.

Dr. Robert W. Kaschub, The Brown Company, Berlin, N. H.

Dr. Oakley A. Melendy, 311 West Street, Gardiner, Me.

Dr. Edward King Morse, 53 Washington Street, Meriden, Conn.

Dr. Jack S. Parker, Eastern Maine General Hospital, Bangor, Me.

Dr. Edward S. Sherwood, 5 Bramhall Place, Portland, Me.

Dr. James T. Slattery, 5301 N. Broadway, Chicago, Ill.

Dr. Alden W. Squires, Box 52, Veterans Adm. Center, Togus, Me.

Dr. Wilfred T. Small, 164 Brush Hill Road, Milton 87, Mass.

The American Goiter Association

The 1951 meeting of the American Goiter Association will be held in the Deshler-Wallick Hotel, Columbus, Ohio, May 24, 25, and 26.

The program for the three-day meeting will consist of papers dealing with goiter and other diseases of the thyroid gland, dry clinics and demonstrations.

George C. Shivers, M. D., Corresponding Secretary, Colorado Springs, Colorado.

New England Pediatric Society

There will be a meeting of the New England Pediatric Society at the Maine General Hospital, Portland, Maine, May 16th.

12.00 to 1.00 P. M.

Clinical Pathological Conference.

2.00 to 4.30 P. M.

Presentation of interesting cases.

Evening meeting, Portland Country Club, at 5.00 P. M., includes Social Hour and Dinner.

Anyone desiring to attend the evening meeting must make reservations with Dr. Alice A. S. Whittier, 143 Neal St., Portland, Maine, not later than May 12th.

Department of Health and Welfare Division of Maternal and Child Health (Including Services for Crippled Children)

Clinic Schedule—1951

ORTHOPEDIC CLINICS

Portland — Maine General Hospital, 9.00-11.00 a. m.: Jan. 8, Feb. 12, Mar. 12, April 9, May 14, June 11, July 9, Aug. 13, Sept. 10, Oct. 8, Nov. 5, Dec. 10.

Lewiston — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 19, Feb. 16, Mar. 16, April 20, May 18, June 15, July 20, Aug. 17, Sept. 21, Oct. 19, Nov. 16, Dec. 21.

Rumford — Community Hospital, 1.30-3.00 p. m.: Mar. 14, June 20, Sept. 19, Dec. 19.

Waterville — Thayer Hospital, 1.30-3.00 p. m.: Feb. 15, April 26, June 28, Aug. 23, Oct. 25, Dec. 27.

Rockland — Knox County Hospital, 1.30-3.00 p. m.: Feb. 8, May 17, Aug. 16, Nov. 15.

Machias — Normal School, 1.30-3.00 p. m.: Feb. 14, Apr. 11, June 13, Aug. 8, Oct. 10, Dec. 12.

Presque Isle — Northern Maine Sanatorium, 9.00-11.00 a. m.—1.00-3.00 p. m.: Jan. 9, Mar. 7, May 8, July 11, Sept. 11, Nov. 7.

Houlton — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 6, July 10, Nov. 6.

Fort Kent — Normal School, 10.00-1.00 p. m.: Jan. 10, May 9, Sept. 12.

Bangor — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 25, Mar. 29, May 24, July 26, Sept. 27, Nov. 29.

CARDIAC CLINICS

Portland — Maine General Hospital, 9.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

Bangor — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

HARD-OF-HEARING CLINICS

Waterville — Thayer Hospital, 1.30-3.30 p. m.: Feb. 21, June 6, Sept. 5, Dec. 5.

PEDIATRIC CLINICS

Bangor — Eastern Maine General Hospital, 1.30 p. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

Waterville — Thayer Hospital, 1.30 p. m.: Jan. 2, Feb. 6, Mar. 6, April 3, May 1, June 5, July 3, Aug. 7, Sept. 4, Oct. 2, Nov. 6, Dec. 4.

Presque Isle — Northern Maine Sanatorium, 1.30 p. m.: Jan. 24, Mar. 28, May 23, July 25, Sept. 26, Nov. 28.

By appointment only.

Hypersplenism—Continued from page 125

hereditary trait. Thus some suffer from the trait rather than the disease and transmit the disease to 50% of their offspring and function as carriers.

The condition usually appears early in life, although it may not be discovered until adult life. In 56% of 71 cases, the condition was recognized before the eighth year.³ However, some like this case have been observed in late adult life. Groen and Garrar⁶ report 58 years as their oldest.

Splenomegaly and anemia are the outstanding features. Epistaxis, bleeding gums or purpura may be seen. The brownish pigmentation with leaden hue of the head, neck, arms and lower legs may be found in up to 75% of the cases. Except for terminal stages and infancy, cachexia is slight or absent. There may be mild hepatomegaly. Lymphadenopathy is confined to deep nodes. Wedge-shaped pinjueculae of the sclera are found especially in those who survive to a late age. The blood shows a normocytic anemia of moderate degree with little or no evidence of other blood regeneration. Leukopenia is common and thrombocytopenia slight. There is no evidence of increased blood destruction. The blood fats, cholesterol and lecithin are normal.

The diagnosis is confirmed by the recovery of typical Gaucher's cells from microscopic examination of sternal bone marrow or splenic puncture.

The prognosis in infants is poor, but in adult life,

patients have lived as long as 40 years after the diagnosis was first made.

The treatment is purely supportative by use of transfusions, antibiotics and hematinics. Although the final test of hypersplenism is in the therapeutic improvement of the blood picture following splenectomy, the effectiveness of splenectomy in this condition would still appear problematical in regards to the recovery of the patient. Whether it would have had a favorable effect in this case is certainly dubious. The hazards of surgery were always too great in this seriously ill patient to ever consider it.

CONCLUSION

An unusual case of splenic pancytopenia, secondary to Gaucher's disease is presented with autopsy findings. Bone marrow aspiration may lead to the ante-mortem diagnosis.

BIBLIOGRAPHY

- (1) Damashek, W., and Estren, S.: Medical Clinics N. A., Volume 34, No. 5, September, 1950, p. 1271.
- (2) Wintrobe, M. M.: Clinical Hematology, Lea and Febiger, 2nd edition, 1946, p. 574.
- (3) Doan, C. A., and Wright, C. S.: "Primary and Secondary acquired Splenic Pancytopenia," Blood, Volume I, 1946, p. 10.
- (4) Ottenstein, B., Schmidt, G., and Thannhauser, S. J.: "Pathogenesis of Gaucher's Disease," Blood, Volume III, 1948, p. 1250.
- (5) Groen, J.: "Hereditary Mechanisms of Gaucher's Disease," Blood, Volume III, part 2, 1948, p. 1238.
- (6) Groen, J., and Garrar, A. H.: "Adult Gaucher's Disease," Blood, Volume III, part 2, 1948, p. 1221.



For only \$6.95

Johnson & Johnson

GAUZE PAD DISPENSER

Handsome . . . Convenient

- Fills easily . . . dispenses easily
- Translucent plastic shows level of content
- Holds 100 3" x 3" sterile gauze pads
- May be used on wall or desk
- A \$2.50 item . . . for only fifty cents

Order NOW . . . Limited Supply

You get *three* packages of 100 gauze pads each and the convenient dispenser for only \$6.95
(Regular price of pads: \$6.45)

GEO. C. FRYE CO.

116 FREE STREET

Founded in 1867

PORTLAND

Prescription Perfect



RED LABEL • BLACK LABEL

Both 86.8 Proof

Every drop of Johnnie Walker is made in Scotland—using only Scotland's crystal-clear spring water. Every drop of Johnnie Walker is distilled with the skill and care that comes from many generations of fine whisky-making.

Every drop of Johnnie Walker is guarded all the way to give you *perfect* Scotch whisky... the same high quality the world over.



Born 1820... still going strong

JOHNNIE WALKER

BLENDING SCOTCH WHISKY

Canada Dry Ginger Ale, Inc., New York, N. Y., Sole Importer

Medical Conference: Continued from page 126

cytes were not seen in the blood smear, although there was a relative lymphocytosis. The heterophile agglutinations were not elevated until approximately five weeks after onset of present illness.

3. A twenty-year-old girl with history of severe sore throat and feverishness of forty-eight hours' duration showed on physical examination, multiple glandular enlargement of the neck and axillae. Blood smear revealed atypical lymphocytes characteristic of mononucleosis. The pharynx was diffusely injected and swollen so that a question of peritonsillar abscess was raised. Small but definite ulcerations were observed in the buccal mucous membranes and posterior pharynx. The heterophile agglutination was abnormally elevated on the third day of the illness. Treatment of penicillin over a ten-day period was of no avail and patient was admitted to the hospital where streptomycin was given. Within forty-eight hours there had been a marked improvement in the throat.

4. A thirty-year-old married woman complained of arthralgia, swollen joints and mild sore throat. Blood examination revealed the presence of large mononucleated cells suggestive of lymphoblasts or monoblasts. Subsequent smears, however, revealed the cells to be suggestive of atypical lymphocytes of Downey's "Type III." On the fourth or fifth day of illness patient developed a swollen, tender liver which remained swollen for a period of over a month, with abnormal liver function tests. At no time was the spleen enlarged. Heterophile agglutinations have not been present at any time.

The final point of interest is that the heterophile agglutinations must be done on serum absorbed on guinea pig kidney for in this way differentiation can be made from the heterophile antibody present in serum sickness. Agglutination titer in excess of 1/56 are generally considered to be of significance. Of more importance, however, is a changing titer.

Over 25 million persons suffer from some disabling or nondisabling chronic ailment. Measured in any terms the chronic diseases are a staggering national burden, a major source of insecurity and of loss of national income. The most important of the chronic diseases are heart diseases, arteriosclerosis, high blood pressure, nervous and mental diseases, arthritis, kidney disease, tuberculosis, cancer, diabetes, and asthma. Although the incidence of chronic disease increases with age and the progressive aging of our population is one of the factors responsible for the growing importance of the problem, it is important to remember that chronic illness occurs at all ages.—Vlado A. Getting, M. D., Dr. P. H., *Am. J. Pub. Health*, October, 1950.



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, May, 1951

No. 5

THE PLACE OF SURGERY IN PULMONARY TUBERCULOSIS*

LLOYD BROWN, M. D., F. A. C. S., Bangor, Maine

About twenty years ago, when the operation of extrapleural thoracoplasty was becoming popular, its proponents were very enthusiastic. They felt that they had found the answer to the control of tuberculosis. Previous to this, bed rest and pneumothorax had been found to work well in the early cases. Thoracoplasty was now available to control the advanced cases. There were even those who were so optimistic as to wonder what would be done with the large, expensive buildings which had been constructed to care for tuberculosis patients.

Today, the sanatoria are still full, and the waiting lists are as long as ever. There are many reasons for this. The time allowed does not permit a discussion of the health control aspects of the problem. From the surgical point of view, thoracoplasty alone has not turned out to be adequate to control the many different problems which arise.

My purpose today is to discuss wherein thoracoplasty has succeeded, wherein it has failed, and what new developments have arisen to supplement the work of that very useful procedure.

The development of surgery of the chest in fields outside of tuberculosis, stimulated by the recent conflict, has been rapid. The application of these developments to tuberculosis has been retarded by the ever-present difficulty that the tuberculous individual does not tolerate an extensive surgical procedure well,

and tissue infected by the tubercle bacillus does not heal kindly. Far too often, an operation caused a flare-up of the disease, or result in persistent sinuses, and the patient was worse off than before.

The development of an antibiotic, streptomycin, effective against the tubercle bacillus, and more recently a drug which enhances the effect of streptomycin, para-amino-salicylic acid, is making a great difference in the approach to this disease and in the results obtained in its treatment.

Before beginning a discussion of the surgical procedures, I am going to undertake a brief discussion of the new anti-tuberculosis drugs. A knowledge of these is important, for they have definite capabilities and definite limitations. Misuse of them at one time may nullify their usefulness and deprive a patient of their benefits later.

Unlike the other antibiotics, such as penicillin in the treatment of pneumococcal pneumonia, streptomycin does not cause a dramatic clearing of the disease and rapid cure. However, it does inhibit its progression, and particularly in fresh lesions, causes regression of the lesions.

It is, therefore, most effective in early exudative lesions, in early miliary tuberculosis and in tracheo-bronchial infections.

In this type of lesion, it may actually control the disease satisfactorily. In our work at the Central Maine Sanatorium, there has been a marked decrease in the number of collapse procedures, particularly

* Read at the 96th Annual Session of the Maine Medical Association, June, 1950.

pneumothorax and pneumoperitoneum, since the use of this and the other drugs has become common.

In the more advanced types of disease, however, where there is much scarring, thick-walled cavity formation and destruction of lung tissue, the clinical result may be very satisfactory temporarily. Temperatures will become normal, appetites improve, weight increase, sputum decrease, and even become negative, and lesions on the X-ray film become stable. However, all of these effects tend to disappear after administration of the drug is ceased. It can be said, then, that where there is marked anatomical damage, there is little permanent effect.

Another limiting factor in the use of streptomycin is the phenomenon of drug fastness, which may develop in a few weeks. Due to the slow nature of the response to the drug, the courses of drug therapy are necessarily long. The longer the course of treatment, the more frequent the incidence of drug fastness. This occurrence can be avoided, to a certain extent, by reducing the dose, giving shorter courses, and by giving the drug in intermittent doses. The administration of para-amino-salicylic acid concomitantly with streptomycin also helps, as will be shown later.

Streptomycin, also, has a very definite toxic effect, particularly if given in large doses, over a long period of time. The occurrence of serious eighth nerve damage is reported. This may be a permanent injury. I can well remember an Army nurse whom I saw, who had received a long course early in the experience with the drug. She had been an excellent scrub nurse before contracting tuberculosis, but at the time I saw her, she could hardly walk, unassisted, because of severe ataxia.

Here, also, small doses in shorter courses has helped. The development of dihydro-streptomycin has been a great improvement for this drug seems to be just as effective against the tubercle bacillus, and is much less toxic.

The search for an effective chemotherapeutic agent seems at last to be bearing fruit. Para-amino-salicylic acid has recently come onto the market. It has a definite anti-tuberculosis effect alone, and, when given in conjunction with streptomycin, not only is the combined effect of the two drugs greater than of either alone, but also the streptomycin fastness occurs less frequently. This drug does cause gastrointestinal disturbances frequently, which limits its use in some patients.

With these characteristics in mind, it can easily be seen how important it is that the use of the drugs be regulated, in accordance with the overall plan for the treatment of an individual case. It is tragic for the usefulness of the therapeutic measure to be expended on a lesion which is not susceptible to it, and then not to have it available as a protection at the time

of a surgical procedure, which could control the disease.

In surgery, these drugs are now used in several ways.

In thoracoplasties, in favorable patients, the drug are withheld, unless there be evidence of spread, after operation. If such should occur, the drugs are given with excellent results, and rapid resolution in many cases. In poor risk patients, the drugs are given before operation to improve the condition. It is possible in this way to render patients fit for surgery in a matter of weeks or a few months, who would ordinarily have needed six months or more of preparation, or, who might never have been fit for surgery.

In other types of surgery, particularly those in which tissue infected with the tubercle bacillus has actually been entered, the use of these drugs permits prompt healing and prevents spreading and exacerbations of contra-lateral disease. Bilateral disease, with the danger of breakdown on the contra-lateral side, has always been a serious problem. These drugs improve greatly the outlook for these individuals.

In the subsequent discussion when streptomycin is mentioned it is used in combination with para-amino-salicylic acid in all cases.

Major surgical procedures for tuberculosis are of two general types. In the first place, there are those where the effect on the lung and on the disease is indirect. The object is to collapse the diseased lung and close a cavity.

In this category are extrapleural thoracoplasty, phrenic nerve crush, extrapleural pneumothorax, paraffin packs, and similar procedures. Of these, thoracoplasty is, by far, the most frequently used, and the most effective. These, with the exception of extrapleural pneumothorax, provide permanent collapse of the diseased areas.

In the second place, there are the operations which are performed directly upon the lung itself, in an effort to remove the disease or obliterate the cavity directly. In this category are pneumonectomy, lobectomy. Monaldi drainage, and cavernostomy or open drainage of cavities.

It is in the latter group that drug therapy has become particularly important. In fact, it has made possible some operations which, previous to its discovery, were fraught with so many dangers as to make them little used.

Phrenic nerve crush is performed to cause paralysis of the diaphragm. It allows the diaphragm to ascend into the thorax, thereby releasing tension on the lung, and, in a small number of cases, allowing collapse of cavities. It has some place as an adjunct to other types of therapy, particularly pneumoperitoneum. It is occasionally successful in treating lower

lobe cavities, but it is generally felt that its usefulness is very limited.

Extrapleural thoracoplasty remains the most useful, and the most widely used single operation, in the treatment of tuberculosis. As it has been refined and developed at the present time, the operation carries a low mortality, about four percent, and the occurrence of spread and reactivation is minimal.

At the present time, multiple stages are done, usually beginning with the upper three ribs, which are removed sub-periosteally, progressing downward in groups of two, three or four ribs, depending on the condition of the patient. Often, anterior stages are added to the posterior, when it becomes necessary to remove the anterior rib ends and costal cartilages to collapse completely some difficult cavities.

Thoracoplasties were first done, after an attempted pneumothorax was unsuccessful. More recently, patients, the character of whose disease indicates that pneumothorax will not be successful, have been subjected to primary thoracoplasty, with good results, and a great saving of time.

Results from all of these procedures, particularly when streptomycin has been added to take care of any complications, are very encouraging. Reuben and Klopstock report a series in which the results, after from two to six years, in 141 patients, showed 61.3 per cent clinically well; 22.7 per cent had active disease. These figures correspond with those from other clinics, and are approximately what we have found at the Central Maine Sanitarium. To obtain a more accurate picture of the results and to determine where the failures occurred, these authors divided their cases, according to the type of disease present.

In the fibrocaseous group, in which cavitory disease was present, but where there was obviously good resistance on the part of the patient, and in whom the process had not extended so far as to cause marked fibrosis and extremely thick-walled cavities, their results in the early follow-ups of less than two years, showed 88.6 per cent successes, 9.3 per cent failures, and two deaths.

The late results showed 80 per cent arrested, 12 per cent active tuberculosis, and six deaths. This is the most favorable group, and one for which the procedure should be primarily used.

Where there is marked scarring, thick-walled cavities, reduction of pulmonary function, progressive disease and poor resistance, tension cavities, and tuberculosis combined with bronchiectasis and unexpandable lung, the results were less good.

It is in these groups that some other method of treatment is obviously necessary.

It is for this group, then, that procedures like extrapleural pneumothorax, followed by paraffin-oil

or lucite balls, Monaldi drainage, and open drainage of the cavity, have been developed.

Extrapleural pneumothorax does have a definite place. In this procedure, the space between the endothoracic fascia and the chest wall is developed, so as to permit collapse of the tuberculous area with a minimal collapse of surrounding good lung tissue. This procedure has been found useful, particularly in cases where there is a necessity for preserving all possible, good lung tissue, so as to prevent the unfortunate result of too enthusiastic collapse therapy, a pulmonary cripple. It has also been used in growing children to prevent the deformity which would follow a thoracoplasty. However, dangers of infection in the extrapleural space and the difficulty of maintaining the extrapleural space have made this procedure less popular. The introduction of foreign bodies into the extrapleural space, in an attempt to secure a permanent type of collapse, has also met with complications. Paraffin and oil have been introduced into the space, but these procedures are frequently complicated by infection. Occasionally, perforation into the pleural cavity and bronchopleural fistula will result.

Recently, an attempt was made to maintain collapse by introducing lucite balls into the extrapleural space. This, also, was found to be complicated by marked fibrosis and reaction to the material. Attempts to remove the lucite balls at a later date have been perilous and the procedure has now been condemned, even by those who originally introduced it. My experience with this procedure has been limited to one case, in which the lucite balls actually eroded through the pleura into the lung, resulting in a very unsatisfactory situation.

Monaldi drainage and even cavernostomy, open drainage of tuberculosis cavities, have recently become more popular. Originally, these were done in desperate cases where the risk of a permanent fistula was accepted. But now, streptomycin reduces the incidence of these complications. They are used in cases where there is a large, so-called tension cavity. The problem, here, is one of disease in the bronchus, leading to a cavity, which partially obstructs the passage of air to and from the cavity. Air is allowed to go in, but with the shrinkage in calibre of the bronchus during expiration, air is not allowed to pass out.

Measurements of the pressure within these cavities show positive readings. Thoracoplasty over such a cavity usually fails to collapse the cavity, for the cavity just migrates downward toward the undiseased lung.

Monaldi drainage consists of inserting a catheter through a trochar into this cavity and decompressing the cavity. With a catheter in place, suction is ap-

plied, and in favorable cases, the diameter of the cavity shrinks. A thoracoplasty can then be performed over the cavity to maintain collapse. In certain cases, also, actually opening the cavity and permitting drainage to the outside, results in satisfactory closure.

With the success of pulmonary resection that resulted when the technic was applied to suppurative disease and to cancer, it is not surprising that attempts were soon made to remove tuberculous tissue in a similar manner. The early attempts were plagued by complications: failure of the bronchus to heal with resulting bronchopleural fistulas and tuberculous empyemas, spreads, and exacerbations of the disease. However, with more experience even before the time of streptomycin, it had been found that the operations have a definite place and since the advent of streptomycin, complications have been distinctly fewer in number.

Although there is still considerable controversy as to the exact indications for pulmonary resection, certain indications are becoming well recognized:

1. Failure of an adequate thoracoplasty to cause cavity closure and sputum conversion.

2. Stenosis of a main bronchus or lobar branch bronchus. In some cases, stenosis may be due to acute inflammatory reaction and edema, resulting from bronchial tuberculosis. In this type of case, streptomycin therapy may relieve the swelling and edema and relieve the stenosis. In such a case, resection may not be indicated. However, in a scarred, stenotic bronchus, there is little question that resection is the procedure of choice.

3. Destroyed lung, where there is cavitory disease and infected bronchiectasis, or bronchiectasis secondary to tuberculosis. Recurrent hemoptysis, in such a case, is also an indication for resection.

4. Tuberculomas. Many tuberculomas are actually cavities filled with inspissated material. Sometimes, it is impossible to make the differential diagnosis between tuberculoma and tumor. In any such case, resection is indicated. These indications are fairly well accepted. There is some argument concerning the following indications, but resections are frequently done.

5. Cavities in the basal portion of the lower lobe, where active disease is limited to the lower lobe or middle lobe. Pneumothorax is not successful, in collapsing lower lobe cavities in too large a number of cases.

Pneumoperitoneum and phrenic crush have often failed. It is worthwhile, perhaps, to try these two latter measures before actual resection is attempted, but frequently resection is the final resort.

6. Tension cavities. As mentioned, these do not respond to thoracoplasty. When tension is due to

broncho-stenosis, resection is indicated. Where it is due to acute inflammatory reaction, streptomycin should be used. A Monaldi drainage may be the answer.

7. Extensive unilateral disease. This is a particularly controversial subject. If the disease were limited to those areas where it appeared on the X-ray, complete extirpation of such a lesion would rid the patient of the disease process. This would certainly be, an ideal solution. However, pulmonary tuberculosis is a widespread disease, involving in all probability, far more actual lung tissue than can be seen on the X-ray. Therefore, resection of the visible disease does not remove it from the body. Furthermore, the diseased lung remaining after resection, is put to greater strain, and, therefore, is more likely to break down. With resection before the protection of streptomycin was available, and before the dangers of over-expansion of the remaining lung were fully appreciated, the results were rather discouraging. A seriously high recurrence rate was reported, and even the initial results were not sufficiently good to be very satisfactory.

However, with streptomycin as a protection, and with the current policy, which is now pretty generally accepted, of performing a thoracoplasty to prevent over-distention of the remaining lung tissue, results are improving rapidly. It is now felt that following a pneumonectomy, thoracoplasty should be done to obliterate, to a large extent, the empty pleural cavity and prevent mediastinal shift.

In an upper lobe lobectomy, a partial thoracoplasty should be done to prevent expansion of the remaining lower lobe, while in a lower lobe lobectomy, a phrenic nerve section is performed to allow the diaphragm to come up and accomplish the same purpose.

Of course, the follow-up for pulmonary resection is still too short to allow final judgment. However, recent reports are encouraging. Gale, Dickey, and Currai, for instance, report 83.75 per cent negative sputums, following a rather short period of follow-up.

Operations in this group were performed for indications much as I have suggested. These were cases which previously would have never been controlled.

At the present time, to sum up briefly, the feeling is that in cases where thoracoplasty has failed, or where experience has taught that thoracoplasty is very likely to fail, pulmonary resection is indicated, provided the rest of the lung is in satisfactory condition.

It has been felt by most people that resection is unwise in the presence of contralateral disease. However, there are some, particularly Overholt, who feel that with streptomycin as a protective mechanism, it

MASSIVE HEPATIC INVOLVEMENT BY METASTATIC CARCINOMA WITH A NEGATIVE CEPHALIN-CHOLESTEROL FLOCCULATION REACTION

A Case Report*

EDWARD WASSERMAN, M. D.**

It has previously been recognized that certain of the liver function tests may be unimpaired in some pathological conditions of this organ. The purpose of this report is to document further evidence of this frequently forgotten fact.

CASE REPORT

A 72-year-old white male entered the Boston City Hospital complaining of enlargement of his abdomen and swelling of the legs for the past five months.

The patient had been apparently well until six months before admission when he lost his appetite and began to fail in weight and strength. Five months before entry he noted that his abdomen was progressively increasing in size and that his ankles were swollen. For two weeks prior to hospitalization, he noted fresh blood in his stools. There was no abdominal pain, nausea or vomiting. The patient denied any change in bowel habit.

The past history revealed a two-week episode of fever and jaundice forty-five years previously. The patient had been a severe chronic alcoholic for many years.

Physical examination revealed a thin, emaciated elderly man who was rational and cooperative. His temperature was 98° F., pulse 90, respirations 15, and blood pressure 140/90. The skin was dry, inelastic and slightly icteric. The sclerae were yellow, the pupils equal and regular, and the fundi normal. The ears, nose and throat were negative. The trachea was in the midline and there was no cervical lymphadenopathy. A few basal rales were present bilaterally. The diaphragms were elevated bilaterally. The heart was percussed 8.5 centimeters to the left of the mid-sternal line; the rhythm was regular, and the sounds of good quality. The aortic second sound was greater than the pulmonic second sound. There were no murmurs. The abdomen was greatly distended, with a venous pattern present. A fluid wave and shifting dullness were elicited. The liver was firm, nodular and enlarged to 9 cm. below the right costal margin. The spleen was not felt. Rectal examination was negative except for external hemorrhoids. There was 3 plus edema of the ankles. Neurological examination was negative.

Laboratory data: White blood cell count was 9,100 with 86 per cent polys; Hemoglobin 14 grams; Icterus index 25; Urea nitrogen 12 mgm.%; Total protein 6.9 grams and Cephalin-cholesterol flocculation negative on two occasions. Prothrombin time was 39 per cent, and after 10 milligrams of Synkavite rose to 42 per cent. A single stool specimen was clay-colored and guaiac positive. Urinalyses were generally negative and showed only the intermittent presence of bile. Urine urobilinogen was positive in dilutions of from 1:32 and 1:640 on repeated tests. A chest plate showed the heart to be prominent in the region of the left ventricle, the aorta tortuous and sclerotic, and a moderate degree of emphysema. A G.I. X-ray series revealed a large diaphragmatic hiatus hernia; the stomach and duodenum were otherwise normal.

The patient was placed on a high carbohydrate, high protein diet and given routine supportive therapy. An abdominal paracentesis on the second hospital day yielded 6. liters of yellow, blood-tinged fluid. Cell block revealed no malignant cells. Following the tap, there was persistent drainage of considerable sanguinous fluid. The patient became progressively weaker, appeared even more emaciated, and by the fourth hospital day he was semi-comatose. He expired one week after entry.

At autopsy, massive involvement of the liver by tumor tissue was found. This organ weighed 6000 grams and was covered with numerous small and large nodules of mottled yellow-pinkish-gray tissue with central umbilication beneath the capsule. On section, the parenchyma was replaced almost completely by this tumor tissue which comprised about 90-95 per cent of the bulk of the liver. Microscopic examination revealed replacement of liver parenchyma by masses of columnar cells with round to oval nuclei, these cells being arranged in cords or tending to form acini. There were occasional mitotic figures and blood vessel invasion. Adjacent to the tumor masses were wide bands of hemorrhage and disappearance of liver cells, leaving only the reticular framework of the lobules.

The primary site was found in the cecum in which a small polypoid lesion (3 cm. in diameter) was discovered which had spread locally to the adjacent bowel wall and proximal portion of the appendix. On microscopic examination, densely packed cords of tumor cells were seen to be forming acini in some

* From the Fifth and Sixth Medical Services (Boston University) of the Boston City Hospital.

** Resident, Fifth and Sixth Medical Services (Boston University) of the Boston City Hospital.

areas with regular round to oval small nuclei and a few mitotic figures. These cells were remarkably regular with little anaplasia and occasional cilia formation by some cells. Several small blood vessels were plugged with tumor cells.

DISCUSSION

Although this patient was jaundiced and clinically had a huge, nodular liver, the cephalin-cholesterol flocculation test was completely negative on two different occasions. At the same time, the prothrombin-time was low with a poor response to parenteral vitamin K and the urine-urobilinogen values were elevated. As recorded in the post-mortem examination, there was massive involvement of the liver by metastatic tumor. The normal parenchyma was replaced almost completely by the tumor tissue which comprised about 90-95 per cent of the bulk of the liver. The average weight of the liver in the male is usually considered to be about 1400 to 1600 grams.¹ In this case, the organ weighed 6000 grams. Because of its multiple functions, large size, enormous reserve capacity, and remarkable regenerative capacity, it has been estimated that at least 75 per cent of the liver must be destroyed, functionally or anatomically, before gross impairment of its functions occurs.² McMaster and Rous were able to abolish the excretory function of more than 95 per cent of the liver tissue of the dog without bilirubin excretion being impaired sufficiently to cause jaundice.³ Therefore, it is occasionally impossible to detect evidences of dysfunction even in the presence of advanced anatomical damage, the result of either primary liver disease or secondary to lesions of the gallbladder and extrahepatic ducts. This is especially true of chronic diseases such as cirrhosis and carcinoma, which, because of their slow progress, are associated with compensatory regeneration with little or no impairment of functions. In acute hepatic disease, however, and especially in hepatocellular necrosis, the functional tests yield more satisfactory results.² For these reasons and because of its multiple functions, no one test for functional capacity has been found satisfactory. It is stated also by Bockus⁴ that liver function is impaired surprisingly little despite a considerable amount of malignant involvement. The associated cirrhosis and obstruction of the bile ducts are largely responsible for positive reactions to tests of liver function.

In the present case, the cephalin-cholesterol flocculation test was twice negative in spite of a tremendous liver which showed almost no normal parenchyma remaining. During the course of some immunologic studies, Hanger⁵ noticed that cephalin-cholesterol suspensions were flocculated by serum from patients with liver disease. He was aware that carcinomatosis of the liver, both primary and metastatic, was frequently accompanied by a negative reaction to this test. In rapidly subsiding hepatitis when jaundice is still present, and with extensive cirrhosis or carcinoma when the hepatic lesion is not in an active phase, this reaction may be negative as in the present case.⁶

Other points in this case deserving of comment are the prolonged history of alcoholism which, together with a lack of gastrointestinal symptoms other than recent melena and a negative ascitic fluid cell block, made cirrhosis a likely possibility before autopsy. The site of primary malignant involvement, the cecum, was so minute that it could easily have been missed without a thorough search at post-mortem examination.

SUMMARY

1. A case of massive metastatic involvement of the liver is reported in which this tremendous organ weighed 6000 grams.
2. Cephalin-cholesterol flocculation tests, performed on two different occasions, were completely negative.
3. The site of the primary malignant involvement occurred in the cecum. The minute size of this lesion explains the paucity of gastrointestinal symptoms.

REFERENCES

1. Boyd, William: A Textbook of Pathology, Philadelphia, Lea and Febiger, 4th edition, p. 523, 1943.
2. Kolmer, J. A., and Boerner, F.: Approved Laboratory Technic, New York, D. Appleton-Century Co., 4th edition, p. 228, 1945.
3. McMaster, P. D., and Rous, P.: The Biliary Obstruction Required to Produce Jaundice, J. Exper. Med., 33: 731, 1921.
4. Bockus, Henry L.: Gastroenterology, Philadelphia, W. B. Saunders Co., vol. 3, p. 367, 1946.
5. Hanger, Franklin H.: Serological Differentiation of Obstructive From Hepatogenous Jaundice by Flocculation of Cephalin-Cholesterol Emulsions, J. Clin. Invest., 18: 268, 1939.
6. Portis, Sidney A.: Diseases of the Digestive System, Philadelphia, Lea and Febiger, 2nd edition, p. 351, 1944.

The school bell must ring each term for butcher and baker, for doctor and lawyer. He who does not constantly enrich his mind with new knowledge may find eventually that his capacity for forgetting will leave little of value behind. And no dog, however

old, need ever say that he can learn no new tricks. The doctor, wherever his path may lie, can still emulate to some degree Chaucer's clerk of Oxenford, for "—gladly wolde he lerne, and gladly teche."—Ed., *The New England J. Med.*, November 9, 1950.

EMOTIONAL FACTORS IN CHILDHOOD DISEASES*

JAMES MARVIN BATY, M. D.**

When I was called about ten days ago and asked if I would come to Poland Spring to fill in a blank spot in the program which was vacated at the last moment, I thought that it sounded like a good idea, never having been here, and Dr. Richards then called me and asked me what pediatric topic I would like to talk about. I made several suggestions, such as nephritis, pyuria and rheumatic fever, the use of ACTH, but none of these seemed to interest him particularly. Then I mentioned the emotional factors in childhood diseases, and, over the telephone, he seemed to perk up his ears a little bit and he thought that that sounded worthwhile. He then said to me:

"Can you make that an interesting talk?"

Well, I was very confident over the telephone. However, I am not so confident, as I have approached the task.

My purpose or effort will be to tell you a little bit about the philosophy of our approach during the past few years to the problems of children.

This began some seven or eight years ago, when I had the opportunity of sitting in on some discussion groups with Dr. Aldrich and others who are very much interested in the emotional factors of childhood. Out of that, at the Boston Floating Hospital, we began, first, a few years ago, with what we called a play therapy project.

That first effort was simply to make the hospital experience of the sick child less traumatic, from the psychological point of view, and make him feel more at home and less disturbed by this experience.

We had all had the feeling that a good many children came to the hospital and although we had cured the pneumonia, or whatever illness the child had, the child went home, so frightened by the experience that he was not entirely well.

At the end of the war, a psychiatrist who had been interested in the hospital sometime previously, before going to the war, came back, and in discussing these problems, we began to attempt to develop more active projects. At first, this was entirely on a voluntary basis. At the present time, it is on a more substantial basis, for we have as part of the hospital service, not only the psychiatrists and psychologists trained in handling and testing children, but psychiatric-trained social service workers and nursery school teachers and supervisors who can help with play

projects, volunteers from the Red Cross, who have some of the older children, not only when they are in the hospital, but when they are home and return for painting and such occupational type of procedures.

Now, the efforts of this program are to attempt to evaluate the intellectual status of the child and his emotional development, as well as his physical condition.

We have the feeling that with the development of pediatrics as a branch of scientific medicine, we had come to understand clearly most disease processes, although we weren't able to cure all of them. But, certainly, with the advent of the newer techniques in surgery that were described this morning and the antibiotics, and so forth, we are able to treat, satisfactorily, most of the problems which we encounter in a hospital for acute illnesses in children.

However, a good many of these children have problems that penicillin or an operation do not seem to cure, and these problems are apparently influenced by many factors, such as their environment, family relationships, their own personalities, their intellectual abilities; so that we feel that studying them, in an attempt to understand their particular conditions, we must be able to evaluate all of these factors.

Obviously, you cannot present material of this type in the same way that we can present material in the treatment of nephritis, or pneumonia, or any other condition of that type.

We have very accurate statistics in our hospital as to the outcome, and the incidence of cardiac complications, in our patients with rheumatic fever over the past twenty years. We have accurate statistics as to the outcome of infants with pneumococcus and various other types of pneumonia, both primary and secondary.

We can marshal a hundred cases of that sort, and you can compare the treatment with serum, with blood transfusions, with antibiotic therapy, and come out with some very accurate figures.

During the past few years, as an illustration, we have had some 26 children come to the hospital because of abdominal pain, who have been very carefully studied, in an effort to find the cause of their pain, and in none of this group were we able to demonstrate any evidence of abnormality from the physical point of view.

In studying them and utilizing the techniques of the psychologists and the playroom group, we have finally decided that in each instance, the pain was not on the basis of physical disturbance, but on some

* Read at the 96th Annual Session of the Maine Medical Association, June, 1950.

** Professor of Pediatrics, Tufts Medical School and Physician-in-Chief, Boston Floating Hospital.

emotional disturbance and under treatment, most of the children have improved.

However, the point that I wish to make is that we can't compare statistically, a group of children of that sort, to a similar group of children with pneumonia.

I have picked out two or three children; they all happen to be girls; they illustrate some of the conditions that I was thinking about.

One little girl by the name of Susan came to us this winter at the age of nine years. She was brought to the hospital because of the blood in her stools. She was brought in by her pediatrician, who is on our staff, with a tentative diagnosis of ulcerative colitis.

The House Officer, who is a Maine citizen, by the way and is coming back to practice here next month, after he had taken the story, stopped me in the corridor and said that this child had the most extraordinary history that he had ever heard of. She had begun at the age of 1½, having diarrhea, which persisted intermittently, with various diagnoses, such as celiac disease, etc. When she was about three years old, she refused to eat, and was so bad that she was put in a convalescent home for a period. When she was five years old, and it was time for her to start going to school, she began vomiting, and for a period of two years, every day, when she went to school, she vomited.

Then, there was a short period when she had no gastrointestinal symptoms, but about a year ago, she had a small amount of blood in the stools, which was thought to be due to a rectal fissure, and this was treated.

Then, two or three months before coming to the hospital, blood had again been noted in the stools, and her pediatrician had had her proctoscoped, among other tests, and it was thought that a small ulceration had been seen. She had no more blood in the stools for a time, but just before coming to the hospital it recurred, and he brought her in for study.

We studied her very carefully, with the modern-day techniques. We were interested in this extraordinary history revolving around the gastrointestinal tract, but we concurred with the tentative diagnosis of ulcerative colitis.

However, everything was perfectly normal, including a very careful proctoscopic examination, and in the meantime, while we were doing these things, we had become acquainted with the child and the parents, and with the year and a half old brother, the only sibling, and it seemed to us that the emotional factors in the family set-up were important. During the six months since she was in the hospital, Susan has been getting along very well, and so far has had no recurrence of her intestinal symptoms.

We accomplished two things, from the emotional point of view, with this child. In the first place, we were able for the first time to convince her parents that she did not have any serious difficulties involving the gastrointestinal tract. I am sure that the parents and the doctor have felt that all of her life, there was something wrong with her intestinal tract, with her beginning to have diarrhea at a year and a half, and then continuing with appetite disturbances and vomiting, finally the blood in the stools.

So that from the psychotherapeutic point of view, we have certainly accomplished a great deal with this child, and we have reassured the physician and the parents that there was nothing abnormal about the child.

Secondly having the opportunity to discuss the problem with the parents, and continuing the discussions since this time and giving them a better understanding of Susan as a little girl and giving her a chance to grow and develop, without the over-protection and over-solicitousness that has been displayed in the past has helped.

Another little girl came in a couple of years ago, and illustrates one of the pitfalls. I shall not give a detailed story on her, but Mary was about seven, I think, when she first came to the hospital. She was sent in specifically for psychotherapy. She was not, as most of the patients who are sent in, there because of physical disease. But, she was sent in with the story that she had always wet the bed and wet herself during the day, and she had a most extraordinary story.

The family had been separated. The child was living with an aunt. The child had been specifically instructed by the aunt, when visiting the father, to wet the bed, and make herself as nasty as possible, so that the father would not want her around the place.

With that story, it seemed obvious that that was the cause of this child's enuresis.

However, a simple physical examination revealed an anomaly at the lower part of the back and she had a neurological bladder, and on further investigation, we found that she had pretty seriously damaged kidneys. She has been in and out of the hospital for various operative procedures, in an attempt to repair this. Undoubtedly, there were emotional factors entering into the situation, but enuresis was not caused by the emotional disturbance.

As an illustration of the children with abdominal pain, I should like to tell you, briefly, about one of my private patients, illustrating many things to me.

This little girl is now nine years old. I have known her since she was two or three years old, shortly after the older brother died with leukemia. The time that I first knew her was when a third child was born, a

little sister. The parents, obviously, were quite apprehensive, having recently lost a child with leukemia. However, they seemed to be nice and pleasant people. The little girl was a sweet, nice girl. And the new baby turned out to be a nice little girl who, unfortunately, at the age of three years, developed diabetes, and has been under treatment constantly for the diabetes, since then. She has done very well, however.

The older sister has had some minor adjustment problems, that we thought were probably associated with her sister having diabetes, and having a lot of attention. She had had some difficulties in school, and became troublesome at times, but there was nothing very serious, until last year, when she began to complain of abdominal pain.

I saw her on several occasions during the episodes of abdominal pain. I could never find anything abnormal, on physical examination. The temperature was normal. The leukocyte count, the few times it was done, during these episodes, was normal. The urine was normal. However, finally, during one of these episodes, she showed a few pus cells, with a rare, small, clump, and I assumed that she had pyelitis, to account for the abdominal pain.

We treated it, and pyuria cleared up. She continued, however, to have the abdominal pain and things became worse.

She was hospitalized for study, and since she was in the hospital, and since I am interested in these factors, and knowing that there was the family situation of a smaller child with diabetes, I asked our psychologist and other workers to pay attention to her. She was not confined, and I asked them to enter her in the playroom and observe her, and see if they could help her in her adjustment.

To my amazement, the psychologist told me two or three days later, she asked Anne to do a drawing test which I am not personally familiar with, but she said that Anne drew a very funny house. They ask the children to draw a house and a man and something else, and from that, get certain indications as to feelings and emotional adjustments. Anne's house was strange, in that it had no chimney. The psychologist said to me that this was the coldest house she had ever seen a child draw. She wanted to know if there was anything wrong in the house. I said not that I knew of. The people were neighbors of mine, and I had known them, casually, all these years. As far as I knew, everything was all right.

That afternoon, the mother called me and was obviously quite upset. She said the night before, she had had to leave her husband and go to the mother's house, because he had gotten drunk and beat her up. And that was the first time I had had any inkling of a very disturbed family situation, in which the father was in the habit of getting drunk, on occasions, and getting into tantrums, and the children were frightened to death. During these episodes, and further interviews, it became perfectly obvious that the disturbed family situation was the factor that was disturbing Anne, and her reflection of this emotional turmoil was abdominal pain.

Since the family situation has been partly straightened out, Anne has not had a recurrence of the abdominal pain.

As to the other symptoms of adjustment, and how the whole business can be straightened out, we don't know.

However, to me, that is a very good illustration of the fact that you may have very severe cramp-like, abdominal pain, apparently associated with emotional turmoil.

Now, in conclusion, I should like to point out that we don't feel that emotional disturbances account for all of the complaints that we see in children. I am sure that those of you, and I know there are many in this Maine Medical Association meeting, who are general practitioners in small communities know their families and understand the people they are taking care of, and know them better than most of us in the big cities, and particularly those of us who specialize, and know one segment of the family; and, whether you vocalize that understanding or not, you have always understood the emotional problems in your patients and their importance in the production of symptoms.

However, we feel that these factors are important, and that you cannot adequately treat people without knowing them. Being a pediatrician, I am particularly interested in the young-age group, of course, but it applies just as validly to adults, for you certainly cannot treat people for their pneumonia, tuberculosis or cancer, without paying attention to the emotional and intellectual factors that go to make up their whole lives.

The cause of the high prevalence of tuberculosis in mental hospitals is failure to recognize or seek out cases of tuberculosis among incoming patients who then transmit the disease to other patients during

residence in the hospital. The situation can be improved only by segregating and treating the tuberculous patients discovered by survey.—Waldo R. Oechsli, M. D., *Pub. Health Rep.*, Jan. 7, 1949.

MAINE STATE POLICE BUREAU OF IDENTIFICATION*

LIEUT. ARTHUR FREEMAN of the Maine State Police

I have been asked to make a few remarks concerning the activities of the Maine State Police Bureau of Identification, particularly its services which are in many ways coördinated with the work of the county attorney and the medical examiner.

The Bureau was born when General James W. Hanson, in 1928, appointed a patrolman to establish a system of identification and records. Through the efforts of Captain Leon Shepard, now retired from active duty, the Bureau advanced from a loose collection of some 5,000 fingerprints to a systematic file of records which now numbers a half a million individual cards, of which approximately 150,000 are criminal histories pertaining to about 75,000 individuals who have at one time or another committed a crime in Maine.

It was only after ten years of slow progress that the 1937 State Legislature enacted a law making it compulsory to fingerprint all persons arrested for or suspected of committing crime, and all unidentified deceased persons; these fingerprints to be submitted to the newly created State Bureau of Identification, which was to act as a central clearing house and bureau of records available to all law enforcement agencies and to work in coöperation with them. In addition to the records division, there was also set up within the Identification Bureau, a police laboratory and photographic unit. We are on call twenty-four hours a day, seven days a week, ready at all times to hasten to the scene of a crime at the request of the county attorney, the sheriff, or the investigating officer, to photograph the scene and the body, if any, in its original location; to assist in the location, careful preservation, and subsequent analysis and identification of evidence; to further photograph the proceedings of the post-mortem, if necessary; and to present such photographs and evidence in court testimony when such action develops.

While our laboratory is not equipped to perform chemical tests, we have splendid coöperation in such cases not only from the Federal Bureau of Investigation, but also from the Massachusetts State Police Laboratory, and our several state laboratories. We are definitely planning to install in the near future up-to-date ballistics comparison equipment which will enable us to give quicker service in these cases, as they are now forwarded to the F. B. I. in Washington.

With few exceptions, any person, unless he has

died peacefully in bed, is presumed until otherwise proven, to have died by violence. This is the point at which the investigating officer, the county attorney, and the medical examiner must work in conjunction and with complete understanding.

The police officer is generally the first to arrive at the scene. The law specifically states that the body of any person presumed to have met death by criminal violence, suicide, or in any suspicious or unusual manner, if not in danger of destruction or damage, shall not be moved until the arrival of the medical examiner, the sheriff, a member of the state police, or the county attorney; and until photographs have been taken under the supervision of the county attorney, the state police or sheriff, unless the county attorney waives such requirements. It further states that after such photographs have been made or have been waived, the medical examiner shall make examination as follows: he shall reduce to writing a description of the location and position of the body and any facts that may be deemed important in determining the cause of death. He may, if authorized by the county attorney, make an autopsy in the presence of a physician and one other discreet person, sufficient to disclose such facts as may be attainable to be of assistance in determining the cause of death. He shall reduce to writing every fact disclosed by the autopsy tending to show the manner and cause of death. The law goes on to say that after the medical examiner has completed his examination, the body may be removed to a convenient place, but shall not be released for embalming except by order of the county attorney or sheriff.

I know of at least one case in which the medical examiner appeared at the scene, looked through the door, and departed without making any notes, or examining the body, or apparently making any effort to determine the cause of death, which according to witnesses, had occurred under suspicious circumstances.

I know of another case in which the medical examiner after a hasty examination, pronounced the death accidental and the body was released for embalming. The rifle used in the shooting was brought into the laboratory and was subjected to various tests in an effort to accidentally explode it in the manner described by the witnesses. This proved impossible and prompted the officer to re-enact the crime, which, incidentally, would have been impossible had photographs not been taken before the body was moved. After the re-enactment of the crime the body was exhumed, an autopsy performed and it was proved

* Read at the Medico-Legal Conference at the 96th Annual Session of the Maine Medical Association, June, 1950.

that the death was not accidental but was murder, and a confession to the crime was obtained.

Obviously one of the first duties of the investigating officer at a violent death scene is to establish identification. This can be done through personal knowledge of relatives or neighbors, through personal effects found on the body, or by any other obvious means. In the event it is impossible to identify the victim through any of the obvious means, it should be remembered that it is not only beneficial but is compulsory to fingerprint all unknown deceased persons.

Several years ago a boat was found drifting off the shores of Vinalhaven. In it was the body of an unknown man. Efforts were made to establish his identity but without results. His fingerprints were then taken and forwarded to the Identification Bureau where by checking them through the criminal file we were able to identify the man as one who had asked for lodging in a city jail a short time before. This is by no means the only case in which we have been able to establish the identity of an unknown deceased person through fingerprints.

The investigating Officer depends on the medical examiner to determine the cause of death and if he finds that death occurred by violence, such as gunshot wounds, poison, stabbing, etc., this information gives the officer the clues on which to start his investigation. He also depends on the medical examiner to tell him the course of a bullet through a body; whether a bruise or cut was caused by a blunt or sharp instrument; whether a cut was caused by a knife, an ice pick, or some other sharp weapon; the width and length of a wound; and the depth of penetration into the body; if a case of poison whether there are traces on the victim's mouth or hands; and to determine as nearly as possible how long the victim has been dead.

Physical signs may be absent with early activity or with indolent or deep-seated tuberculous lesions. Tumors, cysts, and deep-seated abscesses may give no significant physical signs. Roentgen examination usually discloses more extensive disease than has been expected from other methods of examination. It is the only method by which the diagnosis of miliary tuberculosis can be made, since these tiny parenchymal lesions produce no distinctive clinical signs.

Sputum tests, a positive tuberculin test, gastric washings, and serial X-rays studies will usually establish or exclude the diagnosis. One should never make the diagnosis from roentgenologic findings alone, no matter how "typical" the shadows appear.—*Am. Acad. General Prac.*, F. Kenneth Albrecht, M. D., April, 1950.

In presenting evidence in court it is always necessary to establish continuity of possession. For this reason the fewer persons involved the more efficient and economical for the state. I recall one case in which I was called as a witness to identify certain shells found at the scene of a shooting. The previous witness, one of the investigating officers, had testified from a blank notebook that he had picked up the shells at the scene and turned them over to me. Of course when the defense counsel asked for the officer's notes and was handed the blank pages, the witness's testimony was disregarded. It was then necessary for me to contradict him to the effect that the shells had been delivered to me by the sheriff, who had himself picked them up at the scene. I use this instance to point out that an investigating officer should always mark evidence in some way to positively identify it in the future; he should keep accurate notes of all his activities in the case; and if handling evidence, he should deliver it at once and personally to the technician or proper authority. In other words, if I recover some shells at a scene and hand them over to the sergeant with instructions to deliver them, the sergeant hands them over to a trooper, who in turn hands the shells over to another trooper, it is necessary for every one of these persons to appear in court to identify the shells and establish the line of possession.

We all learn by experience. It may be the best teacher but it sometimes proves to be a hard master.

Finally, I'd like to stress the point that the whole science of crime investigation depends upon coöperation; coöperation between the police officer, the sheriff, the medical examiner, the county attorney, and the laboratory technicians. Without this coöperation we inevitably end up with inefficiency, delay in prosecution, mishandling of evidence, and unsolved crimes.

The patient with tuberculosis must cure himself. The final conquest or destruction of the tubercle bacilli is a victory of the body itself. Physicians guide and assist the resisting forces of the diseased body against the rapid multiplication and spread of the invading germs. The general measures of rest and good nutrition remain basic in the treatment.—*Calif. Med.*, John H. Skavlem, M. D., December, 1950.

Every mother of a family, and every doctor in practice, firmly believes that the best bulwark against infection is good wholesome food. The association of tuberculosis with poverty and malnutrition is particularly noteworthy.—Editorial, *Lancet*, December 24, 1949.

CLINICO-PATHOLOGICAL EXERCISE

Case presented at Maine General Hospital, Portland, Maine

Edited by JOSEPH E. PORTER, M. D.

This 48-year-old male was admitted to the hospital for the first time in August, 1946, complaining of weakness and anorexia. For nearly 3 years he had also noted enlarged glands in his neck and groins. Approximately 12 months prior to admission a gland was removed from his neck, and reported as sarcoid. About 2½ years previously he was examined by an ophthalmologist for visual difficulties. Sixteen years before he had a repair of a hernia. During the past month his appetite had become progressively poorer and weakness had increased.

Physical examination revealed a thin male. Chest was clear, heart rate 70, rhythm regular, no murmurs; blood pressure 88/60. Abdomen was slightly distended, and there were palpable glands the size of a walnut on the left side. There were also small glands palpable in the neck and axillae. Temperature was 98.6° on admission; during his hospital stay it spiked to 101°. The pulse averaged around 70 and respirations 20.

X-ray: "Chest—lungs are clear; the hilar markings are within normal limits; the cardiac outline is normal; diaphragms are normal. Impression: Normal chest. The kidney outlines on both sides are obscured by gas; there is considerable gaseous distension of the cecum, but no shadows suggesting stones. G.I. series: The esophagus is normal; the stomach is low in position, outline regular; peristalsis normal; no defects. Duodenum filled without delay; it shows no evidence of tenderness, irritability, or defects. At the end of 6 hours barium is distributed throughout the jejunum and ileum; there is no residue in the stomach. Impression: Normal upper gastrointestinal tract. Barium enema: The whole colon filled normally and well, and shows no evidence of defects, other than for quite a dilated cecum in the pre-evacuation film, but in the post-evacuation film the size of the cecum has returned to normal. The mucous membrane pattern throughout the rest of the bowel is normal."

Laboratory date: Hemoglobin 64%, 9.2 gms.; RBC. 3.2 million, WBC. 11,250; 86% neutrophils, 3% eosinophils, 11% lymphocytes; platelets appeared normal. Gastric analysis showed free HCl. Three stool examinations were done, two of which contained blood; one was described as being soft and brown, and others clay-colored. Total protein was 5.46 gms.%, albumin 2.93 gms.%, globulin 2.53 gms.%. Urine: Specific gravity 1.016; albumin negative; sugar green; no acetone or bile; occasional

WBC. Heterophil antibody negative. Widal was negative.

He was admitted to another hospital, November 25, 1946, with a history of exhaustion, diarrhea, and abdominal pain. Physical examination described him as being very thin; no abdominal fluid was present, and no glands were felt in the abdomen. X-ray at this time: "Abdomen — there is a moderate amount of gas in the large bowel, none in the small bowel; no evidences of stones. Barium enema: There is considerable fuzziness in the margin of the whole colon; no evidence of obstruction seen, and cecum not able to be filled." Dec. 27: Barium enema: "Colon fills normally and well, including the cecum; barium expressed into the terminal ileum; the fuzziness of the wall of the large bowel described in the previous film is not as marked at this time; I therefore believe that probably it was due to foreign material in the colon, rather than to ulceration. Post-evacuation film shows the colon to be evacuated normally; mucous membrane pattern seen from the cecum to the splenic flexure, but not seen, due to lack of evacuation, in the descending colon. Impression: Probably normal colon."

On Dec. 19, 1946, proctoscopic examination gave negative findings. On Jan. 7, 1947, a G.I. series described segmental dilatation of the barium in the jejunum and upper ileum. Impression: "Esophagus, stomach and duodenum normal, with no evidence of organic disease. There is a segment of small bowel in the region of the ileum which is outlined with gas throughout the entire examination, and represents a partial obstruction of the segment of terminal ileum, but not sufficient to obstruct the passage of barium through this area."

Kahn and Hinton tests were negative. Total protein 4.94 gms.%. Urine: Specific gravity 1.020; trace of albumin, no sugar, acetone, or bile; 10-20 WBC. Hb. 80%, 11.5 gms.; RBC. 4.2 million; WBC. 8,400, neutrophils 67%, lymphocytes 30%, monocytes 3%. Sedimentation rate (Wintrobe) 24 mm./hr., corrected to 14 mm./hr. Stool was described as being clay-colored; no blood or ova; fat positive; culture showed E. Coli only. Nurses' notes described the stools as being semi-solid and clay-colored.

On Jan. 11, 1947, an exploratory laparotomy was done, showing small bowel distension, numerous large nodes in the mesentery of the small bowel; no evi-

dence of obstruction. One of these nodes was removed for diagnosis, and was reported as atypical sarcoid.

He was then admitted to another hospital. His weight had dropped from 185 to 90 lbs. Diarrhea continued, and there were also periods of constipation, during which he had noted swelling of his abdomen and crampy pains. Physical examination and laboratory data were similar to those previously described. He was placed on a high caloric diet, with parenteral vitamins, and protein hydrolysates, but his condition became progressively worse, and he died approximately 7 months later.

DISCUSSION

Dr. C. Lawrence Holt: Having had an opportunity to study the X-ray films on this case, I feel that there are a number of findings which may be of importance. In the first place, the original upper G.I. series reveals a jejunal pattern which you can see is coarser than normal, and the usual light feathery appearance is not present. (Fig. I) This suggests some type of defi-

ciency disorder. The 6-hour follow-up film (Fig. II) seems to be of interest, in that there is an unusual amount of fragmentation of the barium, apparently in the lower ileum, with definite irregularity and coarseness of the outline of the barium-filled segments of small bowel, and with a loss of normal mucosal pattern, as can be seen in this film. There is also a puddling of barium in these abnormal segments of small bowel. This particular situation may be seen in such conditions as tropical and non-tropical sprue, in severe vitamin deficiency, and in instances where the barium has traversed the bowel at an unusual rate of speed. A diffuse granulomatous lesion could possibly give the same picture, but it seems improbable that it would be this extensive. The picture does not appear to be characteristic of regional enteritis. In reviewing the films of the various barium enemas, it is apparent that the cecum is distended and dilated, and in one film it is clear that there is considerable haziness outlining the cecum and the ileocecal region. There is no evidence of any fistulous tracts. One of the most interesting films is this one of the large bowel filled with barium, in which you can see an unusual type of foamy or soapy appearance (Fig. III), outlining the greater portion of the ascending and transverse colon, as though there were a layer of small soap bubbles covering the whole mucosa. This is an appearance which I have never seen before, and either suggests that there is an involvement of the bowel wall itself, or that the lumen is filled with some type of fatty, soapy material, which extends through



Figure I



Figure II

ciency disorder. The 6-hour follow-up film (Fig. II) seems to be of interest, in that there is an unusual amount of fragmentation of the barium, apparently in the lower ileum, with definite irregularity and coarseness of the outline of the barium-filled segments of small bowel, and with a loss of normal mucosal pattern, as can be seen in this film. There is also a puddling of barium in these abnormal segments

the hepatic flexure as far as the sigmoid. I prefer to think it is the latter. In the flat plate of the abdomen it is difficult to differentiate small from large bowel segments, although it is apparent in some of the films that there may be distended loops of small bowel in the right lower quadrant, lying in close association with the large dilated cecum.

In trying to make a diagnosis in this case, one can-



Figure III

not neglect the fact that the original gland removed for biopsy examination was reported as showing sarcoid. We must assume that this was a correct diagnosis. It seems unlikely that the lesion would be mistaken for a lymphomatous process, in view of the fact that the multinucleated giant cells of the Reed-Sternberg type are quite different from the Langhans type of foreign body giant cells seen in sarcoid. It would be more difficult, however, to differentiate the lesion from tuberculosis, particularly in a hyperplastic phase, in that the basic epithelioid cells are similar, and the multinucleated giant cells are similar. If no caseation is seen, it may be a difficult differential diagnosis.

If the original condition was sarcoid, then one might try to explain the whole course on the basis of such a lesion, which seems difficult to do, in view of the fact that it would be most unlikely to have such severe gastrointestinal involvement of the skin, bones, or particularly the lungs, and we have evidence that the original chest plate revealed nothing suggestive of sarcoid or tuberculosis. The lack of elevation of the globulin fraction in the serum protein is against a diagnosis of diffuse sarcoidosis. A further possibility is that of tuberculosis developing in a patient with sarcoid, but the whole course does not seem consistent with a tuberculosis enteritis, and again it seems asking too much to have a fatal tuberculosis without some involvement of the lungs. According to Isadore Snapper¹ in his monographs on Besnier-Boeck disease, or sarcoid, and regional ileitis, the two conditions are considered to be closely related, if

not identical. In fact, the two monographs are bound as a single volume. A diagnosis of regional ileitis in his case seems unlikely, in view of the fairly rapid, progressive, relentless, downhill course, plus the findings of an unusual amount of fat in the stools. Other authors, such as Freiman,² writing in the medical progress section of the *New England Journal of Medicine*, believe that there is no relation between Boeck's sarcoid and regional enteritis. He appears to believe that many granulomatous lesions which involve the small bowel may give a microscopic picture not dissimilar from sarcoid, but feels that this is no justification for considering the over-all picture to be sarcoidosis.

When one is presented with a case of lymphadenopathy, episodes of feverishness, weight loss, diarrhea, and evidence of intermittent bowel obstruction, one would be safe in considering such a disease as Hodgkins' granuloma. This, in fact, was the diagnosis which first appealed to me when I read over the case. Against such a diagnosis, however, was the original biopsy finding, plus the fact that the spleen was not enlarged, that there were no mediastinal nodes, and that there was suggestive multiple extensive involvement of the small and perhaps the large bowel by the pathological process. Parker and Jackson³ in their excellent review of Hodgkins' disease in the *New England Journal of Medicine* believe that multiple involvement of the intestinal tract by a Hodgkins' granuloma is exceedingly unusual, particularly in the absence of splenomegaly. Such multiple involvement without splenomegaly might occur, however, in a condition of Hodgkins' sarcoma, and one therefore could postulate that this case began as a Hodgkins' granuloma, and later changed to a sarcomatous lesion. This diagnosis is hard to maintain, however, in view of the report of sarcoid on the original node, and does not explain the fact that the patient had light-colored, fatty-appearing stools. On one laboratory examination, in fact, it is stated that an abnormal amount of fat was present. This type of stool may be seen in conditions of diffuse pancreatic disease, such as celiac disease, absence of the pancreas, in tropical and non-tropical sprue, or in some cases in which there has been an exceedingly high fat content in the diet, as seen occasionally in peptic ulcer patients who are taking large amounts of cream. A diagnosis of sprue seems difficult to sustain in view of the progressive downhill course, the lack of any remissions, the lack of bleeding tendencies, the lack of any pigmentation, and the absence of a macrocytic anemia and peripheral neuritis.

Concerning the pathological report on the lymph node removed at time of exploratory laparotomy, Dr. Porter has volunteered the information that this was interpreted as "atypical sarcoid." As far as I am concerned, this just further confuses the issue, but it does help rule out any of the lymphomatous con-

ditions which we have previously considered in the diagnosis.

Finally, there is one condition which explains very nicely all the gastrointestinal symptomatology, but it is so rare that I feel very insecure in suggesting it. The condition that I have in mind was one first described by Whipple⁴ back in 1907, and is termed "intestinal lipodystrophy." Such a diagnosis explains the progressive course, the appearance of fat in the stools, the marked gastrointestinal symptoms, and, I believe, best explains the X-ray pattern. In reviewing a number of reports in the literature, I find that a deficiency pattern in the jejunum and ileum is not uncommon. Such a diagnosis, however, does not explain the original adenopathy diagnosed as sarcoid by the pathologist. One, therefore, wonders whether we are dealing with two separate unrelated conditions, or whether Whipple's lipodystrophy may in some way represent a type of generalized sarcoidosis, a concept which seems difficult to prove. In view of the complete explanation of the clinical course of this patient by such a condition as Whipple's disease, I favor suggesting this as my final diagnosis, and shall be obliged to merely state that this patient did have a type of peripheral lymphadenopathy which was diagnosed as sarcoid. In some of the cases of Whipple's disease reported in the literature, an accompanying adrenal atrophy was seen at time of post mortem, and I would suggest that such a condition might be found in this patient, in view of his original complaint of severe weakness, and the fact that his systolic blood pressure was reported as low as 88 mm. of mercury.

Dr. Joseph Porter: Dr. Holt has made the correct diagnosis in this case. The patient died of intestinal lipodystrophy, which was described for the first time by Dr. George H. Whipple⁴ in 1907, under the title of "A hitherto undescribed disease, characterized anatomically by deposits of fat and fatty acids in the

intestine and mesenteric lymphatic tissue." I am indebted to Dr. Benjamin Newman⁵ of the Veterans' Hospital in Togus, Maine, for the opportunity of studying the tissues removed at post mortem examination. The microscopic sections of the jejunum and ileum showed the mucosa to be packed with lipophages, which stained with Sudan IV. There were many lymph nodes found in the mesentery, which showed numerous deposits of lipoid. There are about 23 cases of this disease reported in the literature, and granulomatous lesions in the myocardium were described in a case by Reveno.⁶ It is my impression from reviewing the tissues in this case that there were probably two conditions. The lymph nodes removed from the neck were typical of sarcoid, while that removed from the mesentery shows a number of macrophages, some containing lipoid, and in all probability represents an earlier stage of the same condition which was observed in the tissues at autopsy. I think it is interesting that the diagnosis of regional enteritis was not given more consideration in this case, since the mesenteric lymph nodes frequently show a lesion resembling sarcoid.

BIBLIOGRAPHY

1. Snapper, Prof. Dr. I.: *Ervaringen Uit De Interne Kliniek. Pseudo-Tuberculosis in Man*, Haarlem, Holland, De Erven F. Bohn N. W., 1938.
2. Freiman, D. G.: *Sarcoidosis*. N. E. M. J., 239:709, 1948.
3. Jackson, Henry, Jr., and Parker, Frederick, Jr.: *Hodgkins Disease IV, Involvement of Certain Organs*. N. E. J. Med., 232:547-559, 1945.
4. Whipple, G. H.: *Hitherto undescribed disease characterized anatomically by deposits of fat and fatty acids in intestinal and mesenteric lymphatic tissues*. Bull. J. Hopkins Hosp., 18:382, 1907.
5. Newman, B., and Pope, R. H.: *Case of intestinal lipodystrophy (Whipple's disease) simulating Boeck's sarcoid*. Gastroenterology, 11:120-126, 1948.
6. Reveno, William S.: *Intestinal Lipodystrophy (Whipple's disease)*, N. E. J. Med., 243, No. 6, p. 216, 1950.

We emphasize that 60,000,000 to 80,000,000 Americans, for one reason or another, annually consult physicians, and it has been demonstrated that the tuberculosis rate among these groups is higher than among the general population. For this reason, it is highly desirable that private physicians, including general practitioners, internists and specialists, obtain a chest X-ray film of every patient who consults them unless the results of a recent chest X-ray survey are available.—*New England J. Med.*, Robert B. Kerr, Frank G. Seldon, John D. Spring, November 30, 1950.

Services that reduce the reservoir of tubercle bacilli among human beings in any community will lessen the number of new cases of tuberculosis. Every active case of tuberculosis or potentially infectious case discovered and brought under treatment and supervision is a step forward in reducing this reservoir of human tubercle bacilli. In the aggregate these measures represent the weight that is bringing about the control of this disease in our state and nation.—*New England J. Med.*, Robert B. Kerr, Frank G. Seldon, John D. Spring, November 30, 1950.

WHAT EVERY MAINE DOCTOR SHOULD KNOW ABOUT CIVIL DEFENSE AND PUBLIC SAFETY PLANNING — THIRD REPORT

Recommendations for the Tables of Organization and Equipment and for the Operation of Emergency Medical Field Units in the Chain of Evacuation for Civilian Casualties from Disaster Areas.

By CHARLES W. STEELE, M. D., F. A. C. P., Deputy Civil Defense Director No. 3 for Maine

Civilian Defense and Public Safety Planning in the State of Maine has progressed quite rapidly during the eighteen months which have elapsed since the Civil Defense Agency was established and General Spaulding Bisbee was appointed as the first Civil Defense Director in December, 1949. County Civil Defense Directors and the Number 3 Deputy County Civil Defense Directors have now progressed with their planning to the point where they are in need of a "Blueprint" for the emergency Medical Units that will constitute the Chain of Evacuation to be used when great numbers of Civilian Casualties must be removed from large disaster areas. After much study the committee on Emergency Civilian Medical Defense of the Maine Medical Association * and the State Deputy Civil Defense Director, No. 3, and his assistants ** have drawn up the following recommendations for such a Chain of Evacuation, and these recommendations have been approved by the State Civil Defense Director. The Emergency Medical Field Units which will constitute this Chain of Evacuation for Civilian Disaster Casualties is shown in graphic form on Chart No. 1 which follows:

Those persons with previous military service will note that the above Chain of Evacuation for civilian casualties is patterned after the Chain of Evacuation now used by the United States Army. The members of the Committee on Emergency Civilian Defense of the Maine Medical Association were in agreement that the Army had been successfully evacuating cas-

ualties from disaster areas for a very long time and that it would be very difficult, indeed, to improve much on the basic set-up now used by this branch of the Armed Forces. Consequently, the Army tables of organization and equipment were used as guides for the recommendations which follow.

Variations in topography of the ground, in the location of roads, in the position of buildings suitable for occupation by emergency medical units and in numerous other situations peculiar to the different regions of this State will certainly make it quite necessary for the local planners to make substantial modifications in any master plan for the evacuation of casualties. Hence, the Committee on Emergency Civilian Medical Care has prepared only recommendations of a general nature for the number, location and tables of organization and equipment (T/O & E) for the installations shown above on Chart No. 1.

A.—First Aid Posts.

1. Fixed First-Aid Posts.

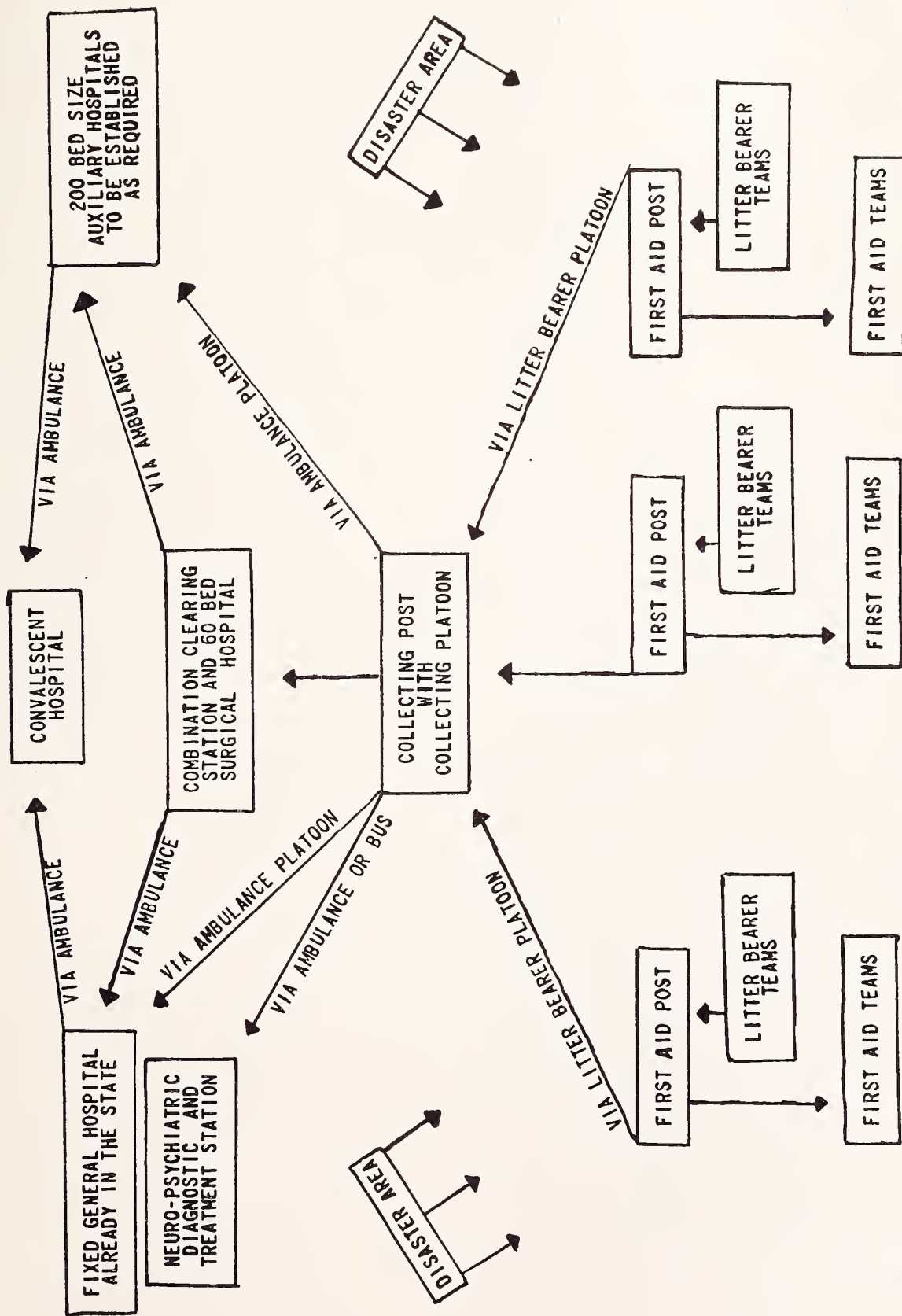
- a. To serve as headquarters for the nurse and her aid and as bases for First-Aid Teams and Litter Bearer Teams.
- b. To be located, whenever feasible, in the basements of, or on the first floor of brick or stone buildings and accessible by at least two doorways.
- c. To be established at points at approximately $\frac{1}{4}$ mile intervals, or

* Charles W. Steele, M. D., F. A. C. P., Chairman; Albert W. Moulton, M. D., Deputy Chairman; Ralph A. Getchell, M. D., F. A. C. S.; Harry Butler, M. D., Garfield G. Defoe, M. D., Frederick C. Dennison, M. D., Harold E. Small, M. D., M. Allan Torrey, M. D., John B. Thompson, M. D., Roscoe L. Mitchell, M. D., Clark F. Miller, M. D., and Oramel H. Stanley, M. D.

** Assistant State Deputy Directors, No. 3: Albert W. Moulton, M. D., Ophthalmologist; Alternate Deputy Director, No. 3, Frederick B. Oleson, Assistant Professor of Physics, University of Maine, Atomic Warfare and Radiological Detection in Civil Defense Planning; Clark F. Miller, M. D., Radiologist, Central Maine General Hospital, Medical Aspects of Atomic Weapons and Atomic Warfare in Civil Defense Planning; Richard C. Wadsworth, M. D., Pathologist, Eastern Maine General Hospital, Transfusions and Blood Banks in Civil Defense Planning; Margaret Y.

Hodgkins, R. N., Chairman, Committee on Civil Defense, Maine State Nurses' Association, Nursing Aspects of Civil Defense Planning; Donald Rosenberger, Director, Maine General Hospital, Fixed and Auxiliary Hospitals in Civil Defense Planning; M. C. Pettapiece, D. O., Chairman, Committee on Civil Defense, Maine Osteopathic Association, Osteopathic Surgeons and Physicians and Osteopathic Hospitals in Civil Defense Planning; C. Wendall Lever, Chief Chemist, Goodall-Sanford Mills, Chemical Defense Aspects of Civil Defense Planning; Charles F. Branch, M. D., Pathologist, Central Maine General Hospital, Special Weapons (Bacteriological Warfare), Defense Aspects of Civil Defense Planning; Parker Mann, D. M. D., Dental Surgeon, Central Maine General Hospital, Dental Services in Civil Defense Planning; W. Mayo Payson, Executive Secretary, Maine Medical Association, Special Assistant to the State Deputy Civil Defense Director, No. 3, in regard to Civil Defense matters.

MEDICAL CHAIN OF EVACUATION FOR CASUALTIES FROM LARGE DISASTER AREAS IN MAINE



NOTE: ARROWS INDICATE THE DIRECTION OF FLOW AND POSSIBLE ULTIMATE DESTINATION OF CASUALTIES

- d. To be allotted by the County or City Civil Defense Directors on the basis of one for approximately every 5,000 of the urban population in the larger towns and cities.
2. Mobile First-Aid Units.
 - a. To be used to implement the personnel operating out of the Fixed First-Aid Posts in a large disaster area with heavy casualties.
 - b. To be assigned by the County or City Civil Defense Director to operate in any disaster area where there were unusually large numbers of casualties, or as replacements for Fixed First-Aid Posts put out of action as a result of the disaster producing agent.
 - c. To be allotted on the basis of one for each 15,000 to 25,000 of the urban population.
3. Table of Organization for a Fixed First-Aid Post or for a Mobile First-Aid Unit.
 - a. The personnel attached will be assigned by the Number 3 Deputy County or by the Number 3 Deputy City Civil Defense Director and will be under his direction. The availability of trained personnel will largely determine the number of persons assigned to each First-Aid Post or First-Aid Unit.
 - b. The personnel assigned should, when at all possible, consist of a minimum of :
 - 1) Three trained nurses each of whom should expect to be on duty 8 hours out of each 24 and should have had the Red Cross standard and advanced courses in first-aid. The nurse would be in charge of the First-Aid Post during her eight-hour tour of duty. The nurse and her aids would be expected to check bandages and splints applied by the first-aid teams and to prepare the casualties for transfer to the collecting posts. She would also be responsible for recording the names, addresses and other vital data in the "Casualty Record Book."
 - 2) Physicians or dentists may be assigned to First-Aid Posts, if a sufficient number of either should be available for this type of duty, in which event they would be in command and the nurses would be responsible to the doctor and would follow his orders. However, it is not expected that physicians in larger towns will be available in sufficient numbers to permit their assignment to First Aid Posts.
Three nurses' assistants, each of whom should expect to be on duty 8 hours out of each 24 at the First-Aid Post during an emergency. The Nurses' assistant would be expected to have had the Red Cross Standard Course in First-Aid and to assist the trained nurse on duty as the latter or the doctor may direct.
 - 3) Pharmacists should be assigned to each First-Aid Post as supply officers. (Sponsoring drug stores should provide both supplies and 1 or 2 pharmacists.)
 - c. First-Aid Teams assigned to each First-Aid Post or First-Aid Unit will vary in number depending on personnel available for assignment but should consist of a minimum of six. Two teams would each be on duty 8 hours out of each 24. All members of First-Aid teams should also have had the Red Cross Standard and Advanced courses in First-Aid. Housewives and high school students could be given this First-Aid training. These teams would be expected to work out into any disaster area from their First-Aid post and to locate, tag and administer First-Aid to the disaster victims. Litter bearers would be summoned to take all non-ambulatory casualties to the First-Aid Post; but ambulatory casualties would be treated and directed to the collecting post from where they could be transported by bus or truck to designated installations outside the Disaster Area proper.
 - d. Stretcher Bearer Teams assigned to each First-Aid Post or First-Aid Unit will vary in number depending on personnel available to the Number 3 Deputy Civil Defense Director, but should consist of a minimum of 6 such teams. These stretcher bearer teams should each be made up of four persons, since here again it is entirely possible that housewives and high school students might constitute the only personnel available for such assignment. Each team would be working shifts of 8 hours out of each 24. Members of these litter bearer teams should have had the Red Cross Standard First-Aid Course and would be expected to carry non-ambulatory casualties from the immediate disaster area to the First-Aid Post.
4. Table of equipment for a Fixed First-Aid or for a Mobile First-Aid Unit.
 - a. One stretcher for each litter bearer team assigned to the Post and one replacement stretcher for each team.
 - b. Two or more high racks for holding stretchers should be installed in every First-Aid Post. (Such litter racks greatly facili-

tate the work of the nurse and her aides when checking dressings and splints.) Several low racks to keep litters off the ground will also be needed.

- c. A supply of blankets, computed on the basis of two for each stretcher and two as replacements.
- d. All other equipment for each Mobile First-Aid Unit should be packed in two portable boxes provided with handles. Each box would need to be 20" x 15" x 8" in size.
- e. The minimum essential medical supplies recommended for a First-Aid Post has been listed in Appendix "A" which is attached to this report. The cost of these medical supplies and equipment needed for one First-Aid Post will be \$197.80, based on prices quoted during October, 1950. In a general way it would seem wiser to stock each First-Aid Post with a minimum amount of supplies and equipment until such time as a disaster may strike. In the meantime, the greater bulk of the First-Aid supplies should be stored in strategic, yet relatively safe places where they would not be subject to destruction yet near enough to permit them to be transported quickly to First-Aid Posts and Mobile First-Aid Units operating in and closely adjacent to any disaster area within the city.
- f. Maine Pharmacists have indicated their willingness to sponsor First-Aid Posts and will provide the initial quantities of expendible medicines and medical supplies required from off their shelves with the exception of medical instruments, sutures and narcotics.

B.—Collecting Post.

- 1. The Number 3 Deputy County and the Number 3 Deputy City Defense Directors should survey their respective county and city with a view to establishing one Collecting Post for each 15,000 to 25,000 of the urban population.
- 2. Each such Collecting Post should be established at an accessible point which will make it possible for casualties to be brought in to it from a minimum of 3 and a maximum of 5 First-Aid Posts. The Collecting Post should be located near a broad street or highway which is not flanked by high buildings in order that it may be reached easily and quickly by motor vehicles such as ambulances, buses and trucks; and it should not be over 1/2 mile away from any one of the First-Aid Posts from which casualties are to be received.
- 3. A Collecting Post will be operated by the Col-

lecting Post Platoon of the collecting company to be described below.

C.—Collecting Companies.

- 1. The Number 3 Deputy County, or the Number 3 Deputy City Civil Defense Director if there is one, should be responsible for selecting commanding officers and their deputy commanding officers and for the organization and training of the necessary number of collecting companies that will be required in their respective county or city.
- 2. The commander of each collecting company should receive orders from and will be responsible to the Number 3 Deputy County or to the Number 3 Deputy City Civil Defense Director who is in charge of that particular locality or area.
- 3. A collecting company should be organized on the basis of one such unit for each Collecting Post that is to be established in each of the larger cities. Or in other words, one collecting company would ordinarily be needed for each 15,000 to 25,000 of the urban population.
- 4. The functions of a collecting company would be as follows:
 - a. The Litter Bearer Platoon will evacuate casualties, either by hand or on collapsible wheel litters or by jeep or ambulance as local conditions permit, from the First-Aid Posts to the Collecting Posts; and on their return will bring back the medical supplies and equipment that will be required as replacements at the First-Aid Posts.
 - b. The Collecting Post Platoon will operate the Collecting Post, sort and classify casualties as they arrive from the First-Aid Posts, and administer such emergency medical care as may be required to prepare the seriously injured for further evacuation to installations outside the disaster zone.
 - c. The Ambulance Platoon will evacuate all non-ambulatory casualties to the designated treatment installation outside the actual disaster zone and would be expected to bring back the medical supplies and equipment needed to replenish such supplies as they are expended.
- 5. The Table of Organization recommended for a Collecting Company made up of the following three platoons:
 - a. The Litter Bearer Platoon should be:
 - 1) Organized in three sections each of which will be on duty 8 out of each 24 hours.
 - 2) Each section to have a leader who will

report to and receive orders from the Collecting Company Commander.

- 3) Each section to be made up of 6 to 10, four-man litter bearer teams capable of carrying a 200-pound litter load $\frac{1}{2}$ mile every 30 minutes. (There should be a minimum of 2, four-man litter teams for each First-Aid Post served by the Litter Bearer Platoon.)
- b. The Collecting Post Platoon should be:
- 1) Organized in three sections each of which will be on duty 8 out of each 24 hours.
 - 2) Each section should have as its nucleus, a medical team made up of one physician, one dentist, one trained nurse and four nurses' aides or orderlies. A registered pharmacist should be assigned to each team to act as supply officer and should be from the sponsoring drug store if there is one. In addition there should be one chaplain, one ambulance dispatcher, two door keepers, two telephone or message center operators, one utility man and one, two-man decontamination team. The doctor will be in charge of the Collecting Post during his 8-hour tour of duty and in his absence the trained nurse would be in charge.
 - 3) The physician in charge of the Collecting Post Platoon may also be designated as the Collecting Company Commander but in either event he will report to and receive orders from the Number 3 Deputy County Civil Defense Director. In the event that the physician in charge of the Collecting Post is not the Collecting Company Commander the former will maintain a close liaison with the Collecting Company Commander with a view to insuring the efficient operation of the three Collecting Company Platoons.
- c. The Ambulance Platoon should be:
- 1) Organized in three sections each of which will be on duty 8 out of each 24 hours.
 - 2) Each section to have a designated leader who will report to and receive orders from the Collecting Company Commander.
 - 3) Each section will include one driver and one attendant for each ambulance, each

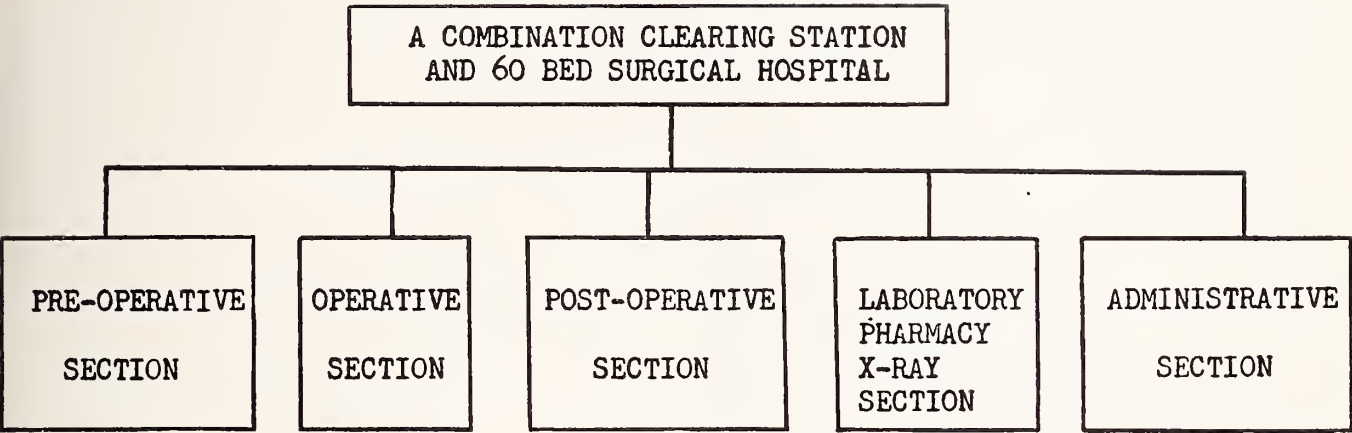
truck equipped with racks for litters, and each bus assigned to the Ambulance Platoon. In addition each section will need to have one ambulance dispatcher, one message center operator to handle incoming and one to handle outgoing telephone calls or other types of communications.

6. The Table of Equipment Recommended for a Collecting Company has been listed in Appendix "B" which is attached to this communication.

D.—The Combination Clearing Station and 60-Bed Surgical Hospital.

1. It is recommended that this type of Unit be sponsored and organized in its entirety from the inactive and courtesy staffs, if possible, and from the nursing staff and administrative personnel of the general hospitals throughout this State with over 50 and under 150 beds.
2. One combination clearing station and 60-Bed Surgical Hospital should be planned for each 25,000 of the urban population.
3. The Number 3 Deputy County and the Number 3 Deputy City Defense Directors should survey each large city in the county with a population of over 20,000 persons with a view to selecting a site 3 to 5 miles out from the center of the city that would be suitable for each Combination Clearing Station and 60-Bed Surgical Hospital that might be required for said city in event serious disaster were to strike.
4. The necessary number of such Combination Clearing Station and 60-Bed Surgical Hospital units would be moved in by the Number 3 Deputy State Civil Defense Director from cities outside the Disaster Area in event the catastrophe was a serious one.
5. The Commanders of these Combination Clearing Station and 60-Bed Surgical Hospital units would then report to and receive orders from the Number 3 Deputy County Civil Defense Director as soon as these units began to receive disaster victims.
6. The Combination Clearing Station and 60-Bed Surgical Hospital units would comprise the first hospital installation in the Chain of Evacuation and would be expected to receive only such very seriously injured disaster victims as could not be evacuated to more distant fixed or auxiliary general hospital units without endangering their lives.

CHART #2



7. Chart No. 2 above shows the proposed general organization of a "Combination Clearing Station and 60-Bed Surgical Hospital" in graphic form.
8. The Table of Organization recommended for a Combination Clearing Station and 60-Bed Surgical Hospital is as follows:
- a. The professional sections should include:
- 1) A total of six physicians and surgeons with the following qualifications:
 - a) Two general surgeons.
 - b) Two assistant surgeons.
 - c) Two internists or general practitioners with a working knowledge of anaesthesia.
 - 2) The nursing units should include a total of 12 nurses with duty assignments as follows:
 - a) A chief nurse.
 - b) Six general duty.
 - c) Five operating.
 - 3) The nursing aide and orderly group should include:
 - a) Eight nurses' aides for ward duty and operating room.
 - b) Five orderlies for ward and operating room assignment.
 - 4) The laboratory unit should include:
 - a) One pathologist, bacteriologist or chemist, if available.
 - b) Two general duty technicians.
 - 5) The X-ray Unit should include:
 - a) One radiologist if available.
 - b) Two X-ray technicians.
 - 6) The pharmacy unit should include one registered pharmacist.
- b. The Administrative Section should include:
- 1) An Administrative Section Chief or director.

- 2) One dietitian.
- 3) Three clerks.
- 4) Two amateur radio operators when required.
- 5) Two telephone or communications center operators.
- 6) Four maintenance men, who may also be required to function as litter bearers or doorkeepers, etc.
- 7) Two housekeepers.
- 8) One cook and one assistant cook.
- 9) Four kitchen helpers.
- 10) The kitchen staff can be deleted from this proposed table of organization if food service units are provided in the general Civil Defense Organization.

9. The Table of Equipment recommended for a Combination Clearing Station and 60-Bed Surgical Hospital has been listed in Appendix "C" which will not be published as a part of this article because of its limited usefulness but can be procured on request from State Civil Defense Agency, State House, Augusta, Me.

E.—*Neuropsychiatric Diagnostic and Treatment Stations.*

- 1. Table of Organization and Equipment for the new army "Psychiatric Treatment Station."

The United State Army has recognized the importance of providing psychiatric treatment as far forward as possible; and in order to make this feasible, psychiatric treatment stations are to be allocated to each army on the basis of one per corps. These new army psychiatric treatment stations are actually "Separate Clearing Companies," which are nominally made up of 15 officers and 135 enlisted men, to which are to be attached four (4) psychiatrists, one (1) neurologist, one (1) clinical psychologist, one (1) psychiatric social worker and eight (8) additional enlisted technicians with MOS numbers which indicate they are to have had training in neuro-

psychiatry, clinical psychology and psychiatric social work. Those readers interested in further details are referred to Army (T/O & E—8-500—Page 12).

These army psychiatric treatment stations have their own transportation and are capable of caring for 200 to 250 patients.

2. The Table of Organization as proposed for Civil Defense "Neuropsychiatric Diagnostic and Treatment Stations" for Maine.

Because of the shortage of psychiatrists in this State, it is impossible to organize units as elaborate and large as the new psychiatric treatment stations planned by the Army. Fortunately, Maine cities are comparatively small and relatively few in number; hence it would seem reasonable to assume that the number of psychiatric casualties would be proportionately less should disaster strike. On the basis of this reasoning, therefore, it has been suggested that a maximum of four (4) neuropsychiatric diagnostic and treatment teams of the type to be described below, should be sufficient to provide adequate Civil Defense coverage for this State.

It has been tentatively proposed that the professional personnel assigned to each of these neuropsychiatric diagnostic and treatment teams include: two (2) psychiatrists, two (2) psychiatric nurses and/or four (4) individuals with experience as supervisors and as trained psychiatric aides in Veterans' or in State Hospitals. Non-professional personnel such as clerks, doorkeepers, telephone operators, litter bearers, maintenance men, etc. (as enumerated above for collecting posts) will need to be recruited for each neuropsychiatric diagnostic and treatment team.

3. A proposed Table of Equipment for a "Neuropsychiatric Diagnostic and Treatment Station" is as follows:

It is recommended that each of these four neuropsychiatric diagnostic and treatment teams be assigned to the nearest Mobile Battalion which latter unit would provide transportation, messing and billeting facilities in event that the Governor should declare the existence of an emergency and these teams are called to active duty.

The bulk of the work of each neuropsychiatric diagnostic and treatment team would consist of caring for acute anxiety states, acute confusional states and acute fear reactions. Insofar as possible, custodial procedures would be followed and the patients sedated and put to bed to sleep for several hours.

In event of major catastrophe and in event the regular commitment procedure should break down, the State Hospital superintendents, under present law, would probably have adequate authority to accept cases with major psychoses that required regular

hospitalization, without the usual formalities and would complete the necessary papers through Probate Court Commitments in Augusta and in Bangor. Patients requiring actual commitment to the State Hospitals are expected to be relatively few in number.

Basic equipment that would be required for each neuropsychiatric diagnostic and treatment team would be a building, in or near the outskirts of the city, which would be large enough to accommodate 40 to 50 beds. Such installations, with alternate sites, should be selected by each City Civil Defense Director or his Number 3 Deputy Director, in advance of disaster and preferably should be partitioned into two or more sections and should have a suitable number of side rooms, if possible. Extra supplies of bedding and beds or folding cots should be kept available for immediate use in these installations. Toilet facilities and toilet supplies such as bed pans, urinals, etc., would also be required.

A sterilizer and an adequate supply of syringes and needles would be necessary. Selected emergency drugs recommended are as follows:

Sodium Amytal, 0.5 gm. ($7\frac{1}{2}$ gr.) Lilly I.V.S., 5 cc. Ampuls, Dist. Water.

Sodium Amytal, 0.25 gm. ($3\frac{3}{4}$ gr.) Lilly I.V.S., 10 cc. Ampuls, Dist. Water, Merrill.

Phenobarbital, Sodium (W. S. P.), 0.12 gm. (2 gr.), I.V.S. (Soluble Phenobarbital).

Amphetamine Sulfate, mgm., 10,—Tablets.

Paraldehyde—pint bottles.

Pentobarbital, Sodium 0.1 gm. ($1\frac{1}{2}$ gr.), Lilly.

Nembutal, 0.1 gm. ($1\frac{1}{2}$ gr.), Abbott.

5 cc. Ampuls of distilled water.

Tuinal—Lilly—Tablets:

(Seconal, Sodium 0.1 gm. ($1\frac{1}{2}$ gr.),

(Sodium Amytal, 0.1 gm. ($1\frac{1}{2}$ gr.).

Morphine sulfate, $\frac{1}{4}$ gr.—Tablets or in solution.

Thiamine Hydrochloride, 5 mg.—mouth.

Betalin S (Thiamin chloride, Lilly), 5cc.—(100 mg. per cc.).

Two or three camisoles should be available for use, if necessary for the restraint of severely manic or violent patients until they can be properly sedated and transferred to permanent institutions.

The Maine Psychiatric Society has suggested that one such neuropsychiatric diagnostic and treatment team be recruited from each of the following places:

- The Veterans' Administration Hospital at Togus.
- The Bangor State Hospital.
- The Augusta State Hospital.
- The Portland area.

Dr. Francis Sleeper, president of the Psychiatric Society, has appointed a committee to study this problem with a view to working out the necessary details for the T/O & E for these proposed neuropsychiatric diagnostic and treatment stations. When completed this T/O & E will be presented to the Deputy State Civil Defense Director Number 3 and to the State Civil Defense Director for their approval.

All county Civil Defense Directors and their Number 3 Deputies should be cognizant of the fact that these figures as given for the personnel, equipment and supplies are minimal for all these units in the "Medical Chain of Evacuation." Hence, it would be necessary either to increase the personnel and add to the equipment and supplies allotted to the regular units in the disaster area or to move in additional units in event casualties were heavy.

The recommendations concerning those units in the "Medical Chain of Evacuation" for disaster casualties, which will be set up well outside the disaster area and which will be under the direct command of the Number 3 State Deputy Civil Defense Director, will be found in a second publication which will be released in the very near future.

(Signed) :

CHARLES W. STEELE, M. D.,
State Deputy Director Number 3,
Civil Defense and Public Safety.

Approved:

SPAULDING BISBEE,
State Director,
Civil Defense and Public Safety.

APPENDIX A

List No. 1—Equipment for a First-Aid Post. (Working supply for the personnel assigned to operate a First-Aid Post.)

List No. 1 below indicates the medical and surgical equipment for use by the trained nurse and her aide at the First-Aid Post. Three such teams will be required to operate each First-Aid Post on a 24-hour-round-the-clock schedule should disaster strike. First-Aid Posts are subsidiary to a Collecting Post which will furnish replacements of drugs and surgical supplies.

LIST NO. I

Cases, Carrying, waterproof	2
Instruments	
Scissors, surgical, Mayo 5½", curved	1
Scissors, surgical, Mayo 5½", straight	1
Scissors, bandage, angular, 7½"	2
Forceps, hemostatic, Rochester, curved, 6¼"	6
Forceps, hemostatic, Rochester, straight, 5½"	6
Forceps, tissue, spring, 5½"	1
Forceps, tissue, spring, mouse-tooth, 5½"	1
Forceps, tongue, holding, 7"	1
Tube, breathing (airway), hard rubber or metal (adult)	1
Tube, breathing (airway), hard rubber or metal (child)	1
Retractor, tissue, double end nested 9" and 10" Army type, pair	1
Syringe, hypodermic, Luer, 2 cc.	2
Needles, hypodermic, 25 gage, ½"	12
Needles, hypodermic, 19 gage, 1½"	6
Tubes, constriction (length 3") for needles	12

Stoppers, tube, constriction, for needles	12
Handles, Bard Parker, No. 3	2
Blades, Bard Parker, No. 10, package of 6	1

Suture Material

Catgut, plain, No. 1, tubes, boilable	6
Silk, dermal, medium, 40" strand, package of	6
Needles, suture, catgut, size 1, half-circle, trochar point, Mayo	6
Needles, cutting edge, straight	6

Drugs

Morphine sulfate syrettes, 0.015 gm.	20
Morphine sulfate syrettes, 0.030 gm.	10
Sulfathiazole, powder, vials, 5 gm.	12
Ointment, ophthalmic, boric acid, 5% tube, 4 gm.	1
Alcohol, denatured, ethyl, bottle, 500 cc.	1
Ammonia, aromatic spirit, bottle, 60 cc.	1
Sodium bicarbonate	½ lb.
Phenobarbital tablets, 0.03 gm.	100
Caffeine sodium benzoate, ampuls 0.5 gm.	12
Epinephrin hydrochloride, 1:1000	20 cc.

Dressings and Bandages

Compress, gauze, 4" x 4"	100
Compress, gauze, 2" x 2"	200
Pad, surgical, 8" x 10" (Dakin)	25
Bandage, gauze, 2"	24
Bandage, muslin, 4"	24
Bandage, triangular, muslin, 50" x 36" x 36"	24
Cotton, roll, sterile, absorbent	2 oz.
Plaster, adhesive, 2" x 10 yards, roll	2
Cotton batting roll	1 lb.

Miscellaneous Supplies

Pins, safety, large	48
Splints, basswood	12
Depressors, tongue, wood	24
Applicators, wood	25
Sheeting, rubber (45" x 72")	1
Basins, white enamel, 9" x 6" x 1⅞" (one with cover)	2
Stove, gasoline (Coleman)	1
Pencil, indelible	1
Pencil, dermatographic (red)	1
Pads, heating chemical	4
Pads, heating, refills, chemical	4
Gloves, surgeon's rubber, size No. 8 (latex) pair	2
Flashlight (two-cell)	1
Battery, dry cell, for flashlight, No. 950	4
Lantern, electric, dry-cell type	1
Battery, dry-cell for lantern, No. 6	4
Cups, paper	25
Brush, nail	1
Soap, hand, bar	2
Towels, hand	12
Matches, safety, box	3
Tourniquet, field, web	3
Bag, laundry, small	1
Tags, identification, book of 20	6
Casualty record books	1

The cost of the above list of supplies and equipment for a First-Aid Post was \$197.80 according to prices quoted in October, 1950. A supply of penicillin and of sulfadiazine tablets should be included with the above list of drugs; and additional stocks of salt tablets, dressings and gauze suitable for the initial treatment of burn cases will be required in event of atomic warfare.

APPENDIX B

The Table of Equipment Recommended for the three platoons of the Collecting Company.
A. The Litter Bearer Platoon should be supplied with the following items:

1. One litter for each four-man litter squad or team.
2. Two blankets for each litter.
3. One individual first-aid packet for each man assigned to this platoon.
4. One water canteen for each litter bearer.
5. One dry-cell lantern for each litter bearer team.

6. One dry-cell flashlight for each man.
7. One collapsible type wheel litter carrier for each litter bearer team.
8. Leg and arm splints and additional first-aid dressings and supplies to be obtained from the Collecting Post as required by the litter bearer teams.

B. The Collecting Post and the Collecting Post Platoon should be provided with the following medical equipment and supplies:

1. *List No. 2.—Equipment for a Collecting Post.*

(Supplementary supplies for a collecting post platoon made up of three physicians, nurses and nurses' auxiliaries.)

List No. 2 which follows, indicates the Medical and Surgical equipment for a Collecting Post. It contains the bulky articles such as traction splints which could not be included in the equipment for the First-Aid Post without impairing its mobility. These articles will be issued from the Collecting Post to the First-Aid Posts as the need arises. The former is also stocked with dressings, bandages and drugs from which the supplies of the First-Aid Posts may be replenished.

Traction Splints

Splint, arm, hinge, Thomas	4
Splint, leg, half-ring, Army type	4
Splint, Thomas, leg, child	2
Splint, arm, Murray Jones, child	2

Suture Material

Catgut, plain No. 1, tubes, boilable	12
Silk, dermal, medium 40" strand, package of 12	1
Needles, suture, size No. 1, half-circle, trochar point, Mayo	12
Needles, cutting edge, straight	12

Drugs

Morphine sulfate syrettes, 0.015 gm.	40
Morphine sulfate syrettes, 0.030 gm.	20
Sulfathiazole, powder, vials, 5 gm.	24
Ointment, boric acid, ophthalmic 5% tube, 4 gm.	2
Alcohol, denatured, ethyl, 70%	1 qt.
Ammonia, aromatic spirit, bottle, 60 cc.	1
Sodium bicarbonate	1 lb.
Phenobarbital tablets, 0.03 gm.	200
Caffeine sodium benzoate ampuls, 0.5 gm.	24
Procaine hydrochloride tablets, 0.18 gm.	100
Sodium chloride compressed tablets, 1 gm.	100

(Additional sodium chloride tablets will be needed if the number of burn cases is large.)

Dressings and Bandages

Compress, gauze, 4" x 4"	200
Compress, gauze, 2" x 2"	400
Pad, surgical, 8" x 10" (Dakin)	50
Bandage, gauze 2"	48
Bandage, muslin, 4"	48
Bandage, triangular, muslin, 50" x 36" x 36"	48
Cotton, absorbent, roll	1 lb.
Plaster, adhesive, 2" x 10 yds.	4
Cotton batting, roll	2 lb.

Miscellaneous Supplies

Pins, safety, large	100
Splints, basswood	30
Depressors, tongue, wood	100
Applicators, wood	50
Sheeting, rubber (45" x 72")	2
Basins, white enamel, 9" x 6" x 1 7/8" (2 with cover)	4
Stove, gasoline (Coleman)	2
Catheter, urethral, rubber, F14	4
Pencil, indelible	4
Pads, heating, chemical	8
Pencil, dermatographic (red)	4
Refills, pads, heating, chemical	8
Gloves, surgeon's rubber, size 8 (Latex) pair	4
Lantern, electric, dry-cell	2
Batteries, dry-cell, lantern, No. 6	12

Cups, paper	50
Brush, nail	2
Soap, hand, bar	4
Towels, hand	24
Matches, safety, package of 12 boxes	1
Tourniquet, field, web	6
Bag, laundry, small	2
Tags, identification book (books of 20)	6
Razor, safety	1
Blades, safety razor	12

The cost of the above list of items would be \$227.17 according to prices quoted in October, 1950. At first it had been assumed that these medical supplies and equipment listed above would have to be purchased and stored in anticipation of their need in time of disaster, but it would now appear that such stockpiling of essential medical supplies might not be advisable or necessary. The Officers and Members of the Maine Pharmaceutical Society have indicated that any large drug store in our major cities here in Maine should be able to furnish directly off their shelves all of the above enumerated medical supplies except for the surgical instruments, sutures and splints. Hence, it is recommended that the larger drug stores be requested to sponsor Collecting Posts in their respective cities, but not the ones in their immediate vicinity for reasons which are obvious.

Biological products such as tetanus antitoxin and tetanus toxoid, blood plasma and antibiotics such as penicillin, aureomycin, chloromycetin, terramycin, etc., have been omitted from the above list. The State Department of Public Health has been asked to stock larger quantities of tetanus antitoxin, tetanus toxoid and dried blood plasma in anticipation of disaster.

The present blood banks throughout the State have been requested to expand their bleeding and processing facilities and to enlarge their donor lists; and blood and liquid plasma would be rushed from these blood banks to the scene of the disaster in refrigerator trucks. Funds to stockpile 1000 Baxter transfusion units have been included in the State Civil Defense Budget request for 1951.

Since penicillin and the other antibiotics tend to deteriorate and to become outdated if they are stockpiled and not used in a reasonable time, it was decided that these items might better be stocked in larger quantities in the General Hospitals that are in operation throughout the State, or stored in strategically located depots and distributed promptly to clearing stations and collecting posts in the disaster area.

Sodium pentothal for intravenous anesthesia should be added to the above List No. 2. Additional supplies such as sulfadiazine tablets should be added. Finally stocks of vaseline grease and other items required for the treatment of burns would need to be greatly augmented in event of Atomic warfare. A substantial number of hypodermic atrophine tablets would be required along with additional alkali solutions should enemy use of nerve gases be anticipated in the immediate future.

Finally, each doctor assigned to a Collecting Post should be issued and expected to carry with him for use when assigned to emergency service, a kit functionally equivalent either to the OCD Medical Case B issued during World War II or to Stock No. 9-577-650 Surgical Instrument Kit, Minor Surgery, Armed Services Catalog of Medical Material. This latter contains the following items:

Curette, Ear, Spoon and Hook, Gross, 5-inch	each	1
Director, Grooved, Cooper, 5-inch	each	1
Forceps, Dressing, Straight, 5 1/2-inch	each	1
Forceps, Hemostatic, Straight, Kelly, 5 1/2-inch	each	2
Blades, Operating Knife, No. 10, 6s	pkg.	2
Blades, Operating Knife, No. 11, 6s	pkg.	2
Handle, Operating Knife, No. 3	each	1
Needle, Suture, Surgeon's Regular, 3/8 Circle, Cutting Edge, Size 12, 6s	pkg.	1
Needle, Suture, Surgeon's Regular, 3/8 Circle, Cutting Edge, Size 16, 6s	pkg.	1
Probe, General Operating, Straight, 5-inch	each	1
Scissors, Operating, Straight, One Point Sharp, 5 1/2-inch	each	1

Continued on page 163

EDITORIAL

June 17, 18 and 19, 1951!

June 17, 18 and 19, 1951! Have you marked those dates on your calendar? If not — do it now and make your reservations at the Poland Spring House for the duration of the 97th annual session of YOUR Association; the Maine Medical Association.

On the next two pages you will find the Program in Brief for this event. This is just a sample of what is in store for you and your Mrs. And — don't forget that she really has a part in the Association now that the Woman's Auxiliary is practically State wide.

There isn't much that I can tell you about these Annual Sessions, especially if you are one of those fortunate enough to have attended previous meetings. If I should start to enumerate the value to each and every member, I would probably find myself taking up much more room in this issue of the JOURNAL than has been left to me and you would probably begin to wonder why we limit the session to three days.

Consequently, I am going to remind you that the meeting opens officially with the First Meeting of the House of Delegates on Sunday, June 17, at 3.00 P. M. This meeting is open to all members and I wish that you would make it a point to be there and listen to the discussion which determines the future of your Association. Remember, you have appointed the members of the House for this purpose, why not

be there and see and hear them in action! The Second Meeting of the House is scheduled for Monday, June 18, at 4.30 P. M.

The election of the President-elect "shall be by direct ballot at . . . the close of the first general afternoon session," i.e., Monday afternoon, at 4.00 P. M.

Fifty-Year Medals will be presented to eight of your colleagues who graduated from medical school in 1901 at the Annual Banquet, Tuesday evening, June 19, at 7.00 P. M. Three members, who received Fifty-Year Medals at the 1941 Annual Session, will receive Ten-Year Bars and three will receive Five-Year Bars.

One of the most important parts of the program is the Technical Exhibit. Thirty-eight companies have registered for this exhibit. These companies, to a large measure, make these meetings possible. Please plan to visit each one. They warrant your appreciation and interest.

The Official Program will be published in the June issue of the JOURNAL and a copy sent to you early in June; be sure and put this copy in your pocket when you start for Poland Spring.

Don't forget to pass this issue of the JOURNAL on to your wife after you have finished reading it — also the June issue and the program.

PROPOSED AMENDMENTS TO BY-LAWS

According to the By-Laws, Chapter XIII, Section 1, any proposed amendment must first be submitted to the Council and published in the JOURNAL at least 30 days preceding the annual meeting. The following proposed amendments have been so submitted and are in order for action at the annual meeting in June:—

Amend Section 4, Chapter III of the By-Laws by adding thereto the following:

"Active, honorary and senior members shall be counted in determining the number of delegates and

alternates to which a component society is entitled."

Amend Section 1, Chapter III of the By-Laws by adding thereto the following:

"A spring session of the House of Delegates shall be held each year at a time and place determined; such meeting shall be held at least 60 days prior to the annual session."

Amend Chapter II of the By-Laws by repealing Section 2 thereof and renumbering Section 3 to read Section 2.

PROGRAM IN BRIEF
Maine Medical Association
Ninety-Seventh Annual Session

POLAND SPRING HOUSE

Poland Spring, Maine

SUNDAY, MONDAY, TUESDAY

JUNE 17, 18, 19, 1951

Arranged by the Scientific Committee
 Franklin F. Ferguson, M. D., Chairman

SUNDAY, JUNE 17, 1951

3.00 P. M.

FIRST MEETING OF THE HOUSE OF DELEGATES

7.00 P. M.

DINNER:

Speaker—To be announced

MONDAY, JUNE 18, 1951

9.00 A. M.

GENERAL ASSEMBLY:

Presiding: Foster C. Small, M. D., President

Announcements:

Franklin F. Ferguson, M. D., Chairman, Scientific Committee

Frederick R. Carter, M. D., Secretary

9.30 A. M.-12.00 Noon

GENERAL SESSION:

X-ray Conference:

Forrest B. Ames, M. D., Bangor

Symposium on Burns:

Charles F. Branch, M. D., William V. Cox, M. D.,
 Merrill S. F. Greene, M. D., Lewiston

ACTH and Cortisone in Surgery:

Edward L. Howes, M. D., Department Surgeon, Columbia University College of Physicians and Surgeons

12.30 P. M.

LUNCHEON

LUNCHEON MEETINGS:

County Presidents and Secretaries

John W. Cline, M. D., President-elect, American Medical Association, will be present

2.00 P. M.-4.00 P. M.

GENERAL SESSION:

Surgery of the Thyroid Gland:

E. S. Judd, M. D., Surgeon, Mayo Clinic

Hard of Hearing Program:

George O. Cummings, M. D., Portland

President's Address:

Foster C. Small, M. D., Belfast

4.00 P. M.

INTRODUCTION OF VISITING DELEGATES

ELECTION OF PRESIDENT-ELECT

4.30 P. M.

SECOND MEETING OF THE HOUSE OF DELEGATES

7.00 P. M.

DINNER:

Speaker:

John W. Cline, M. D., President-Elect, American Medical Association

TUESDAY, JUNE 19, 1951

9.00 A. M.-12.00 Noon

GENERAL SESSION:

Symposium on Fractures and Trauma:

Howard L. Apollonio, M. D., Rockland

Amputee Demonstration — Vocational Rehabilitation Group

Obstetrics for the General Practitioner:

H. Bristol Nelson, M. D., Obstetrician, Boston Lying-In Hospital

12.30 P. M.

LUNCHEON

2.30 P. M.-5.00 P. M.

MEDICO-LEGAL SOCIETY:

President, Arch H. Morrell, M. D., Presiding

Announcements

Presentation of Case:

Wilson H. McWethy, M. D., Medical Examiner,
Augusta

Poisons from the Chemist's Point of View:

Dr. Joseph Walker, Boston, Instructor, Harvard Medico-
Legal Department

Poisons from a Medico-Legal Standpoint:

Richard Ford, M. D., Head of Harvard Medico-Legal
Department

2.30 P. M.-5.00 P. M.

MAINE HEART ASSOCIATION:

Program to be announced

7.00 P. M.

ANNUAL BANQUET:

Speaker: Governor Frederick G. Payne

Presentation of Fifty-Year Medals, Five- and Ten-Year
Bars

Presentation of Golf Prizes

SPECIAL NOTICES

MONDAY, JUNE 18, 1951

9.30 A. M.

OPHTHALMOLOGICAL SECTION:

Howard L. Hill, M. D., Waterville, Chairman

Program to be announced

12.30 P. M.

MAINE RADIOLOGICAL SOCIETY—ANNUAL MEETING:

A luncheon meeting

TUESDAY, JUNE 19, 1951

10.00 A. M.

MAINE MEDICO-LEGAL SOCIETY:

Joint meeting with County Attorneys' Association

Annual Reports—Election of Officers—New Business

Dr. Ford and Dr. Walker will be present and talk on
matters of interest

12.30 P. M.

MAINE HEART ASSOCIATION—ANNUAL MEETING:

A luncheon meeting

GOLF TOURNAMENT

Francis A. Winchenbach, M. D., Bath, Chairman

Woman's Auxiliary to the Maine Medical
Association

The Woman's Auxiliary Annual State Meeting will be
held in conjunction with the Maine Medical Association
Annual Meeting, June 17, 18 and 19.

The Executive Board and Council will meet Monday morn-
ing, June 18, at 9.00 A. M.

Medical education programs for all women attending the
Convention will be held Monday morning at the Mansion
House.

Monday afternoon at 2.00 P. M., a meeting for all Aux-
iliary members will be held at the Mansion House for annual
business, election of Officers, and to hear an address by the
National President of the Woman's Auxiliary.

See the Maine Medical Association Program in Brief for
the evening programs, which the ladies are invited to attend.

Art — Hobby Exhibit

The first annual Art Hobby Exhibit will take place at the
Poland Spring House, during the 97th annual session.

Participants are requested to notify Dr. Frederick R.
Carter, Secretary-Treasurer, Maine Medical Association,
142 High Street, Portland, of their entries as early as
possible.

If you plan to participate please get this information in
the mail without delay.

Convention Rates

Poland Spring House

Poland Spring, Maine

The Convention Rates for the 1951 Annual Session are as
follows:

Double room with twin beds and private bath —
\$13.00 per person per day.

Two double rooms with twin beds and connecting
bath, or a double room and single room with
connecting bath — \$13.00 per person per day.

Single room with private bath — \$15.00 per day.

A fifteen percent gratuity will be added to the bills of members and guests as they check out. This relieves con-
ventioners of the responsibility of tipping during the session.

Single or double room without bath — \$11.00 per
person per day.

Charge for non-registered guests for meals will be as
follows:

Breakfast	\$2.00
Luncheon	3.00
Dinner	4.00
Banquet	5.00

MAKE YOUR RESERVATIONS NOW!

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, Harry D. McNeil, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Hancock

A regular meeting of the Hancock County Medical Society was held on Wednesday, April 11, 1951, with eighteen members and guests present. The meeting was preceded by dinner at the Hancock House in Ellsworth, Maine.

The meeting was opened at 8.20 with a discussion of the proposed Blue Shield Plan for the State of Maine. In view of the action of the Cumberland County Association and the arguments presented at this meeting, the Society passed a resolution to the effect that while the Society approved of the principle of voluntary health insurance it did not approve of the present form of contract presented by the Associated Hospital Service of Maine; and recommended that the members of the Society either do not join the present Blue Shield Plan or resign from it if they have already joined.

The business meeting was followed by a detailed and very interesting discussion of the Blood Groups by Dr. Fred H. Allen, Jr., of Boston.

JOSEPH H. HANSON, M. D.,
Secretary.

Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Veterans' Administration, Togus, April 12, 1951. Dinner at 6.30 p. m. was served to over forty members and guests.

President Harlow announced the appointment of the Diabetic Committee — Drs. Champlin, McWethy and Lepore. The application of G. I. Gould, M. D., Richmond, was received and referred to the council. Reference was made to the letter from the Maine Medical Association telling of the coming meeting of the House of Delegates. The record of the February meeting was read and approved.

Then President Harlow requested the Secretary to read the letter which had been sent from the Secretary of Cumberland County to all county secretaries; the letter stating that Cumberland County did not approve the "Blue Shield" plan, had instructed their delegates to oppose it, and their secretary to inform the various counties.

Motion to favor the Blue Shield was made and seconded; there was considerable discussion; the motion was supported by a majority of approximately four to one.

President Harlow gave his chair to the chief medical officer who introduced William C. Moloney, M. D., of Boston, whose subject was "Anticoagulants" — he discussed their use in coronary disease and post-operative embolism among other problems. Spoke of dicumeral and that its use is far from settled. Heparin, heparinoid compounds, and the allied compounds and preparations were discussed with the aid of charts. Unfortunately these compounds are very expensive.

This was another very valuable and interesting paper with a number of questions following.

A. H. MORRELL, M. D.,
Secretary.

WOMAN'S AUXILIARY

Annual Meeting Woman's Auxiliary to A. M. A.

Last Call for reservations for the Twenty-eighth Annual Convention of the Woman's Auxiliary to the American Medical Association, which will be held at Haddon Hall, Atlantic City, New Jersey, June 11-14.

Atlantic City extends a hearty welcome to you!



"... the most effective drug in this [xanthine] series"

"*Bronchodilators (Antispasmodics).* Aminophyllin is the most effective drug in this [xanthine] series. . . Rectally, in suppositories or solution, it is more effective than by oral administration and is useful when employed two or three times daily in the prolonged [asthmatic] attack. . ."

Feinberg, S. M.: Asthma—Present Status of Therapy, Chicago M. Soc. Bull. 51:1062 (June 18) 1949.

For prolonged optimal effect . . .

Searle AMINOPHYLLIN^{*}
Supposicones[®]
 7½ grains



For Rectal Administration

- nonirritating to rectal mucosa—prompt disintegration
- easily inserted and retained.

Searle Aminophyllin is also available in ampuls, powder and tablets. Uncoated tablets are identified by the imprint SEARLE.

SEARLE

RESEARCH IN

THE SERVICE OF MEDICINE

*Contains at least 80% of anhydrous theophylline.
 G. D. SEARLE & CO., CHICAGO 80, ILLINOIS

Advertisement



From where I sit by Joe Marsh

Wrong Powder For Hunting

Seldom see Jackson the forest ranger—or ex-forest ranger—around these parts any more. He's retired now, on a pension.

Ran into him, though, over at Harpersbury, yesterday. Still hale and hearty—doesn't look half his age. He makes extra money guiding campers and hunting parties. Told me about something that happened to him on his last trip.

"We lost our way, back of Ten Mile River," he says. "And when I reached for my compass to check up, I found I'd brought the wife's compact by mistake! I used the sun to find the river, and we finally got out—but I sure felt like a real greenhorn . . ."

From where I sit, this shows how even the experts can get mixed-up at times. Take the way some "experts" would deny us the right to a glass of beer—or the way still others would like to tell a man how to practice his profession. I say they're experts only at minding somebody else's business!

Joe Marsh

Copyright, 1951, United States Brewers Foundation

The Place of Surgery in Pulmonary Tuberculosis *Continued from page 136*

is safe to perform a resection in the presence of contra-lateral disease if the disease appears inactive. Only further experience will tell us what the limitations of this type of surgery are.

There is one further type of tuberculous infection in the treatment of which great strides have been made. This is tuberculous empyema. This condition is a very serious form of the disease. Coming as it often does, as a complication of a pneumothorax, which seems to be going well, it may completely change the prognosis. Particularly when complicated by a mixed pyogenic type of infection, it renders the outlook very black. The old method of treatment consisted of repeated aspirations, and the introduction of sterilizing solutions in the pure tuberculous infections, followed by extensive thoracoplasties, to collapse the residual cavities.

In the mixed infections, open drainage and thoracoplasty were the rule. This condemned the patient to months of waiting for the wound to heal and the loss of large amounts of functioning lung.

During the recent war, the operation of decortication, proposed many years ago for the treatment of empyema, was revived. First used to restore the function of collapsed lung, following hemothorax, it has subsequently been used for pyogenic and more recently for tuberculous empyemas. The problem here is that the hemothorax or empyema cavity is walled off by a tough layer of fibrin, overlying the pleura and preventing the expansion of the lung. In the operation of decortication, the cavity is opened and the layer of fibrin and scar is dissected from the pleura. The lung is allowed to re-expand and fill the cavity. The patient regains the use of the trapped lung and is cured in the matter of a few weeks.

The operation is performed through grossly infected tissue, but the protection afforded by the antibiotics is sufficient when the dead space is obliterated.

The procedure was applied to tuberculous empyemas at first, with some trepidation, and only after the infection had quieted down. Now, with the protection of streptomycin, active tuberculous, pleural infections can be treated with excellent expectations of success.

The operation is also used for the unexpandable lungs, which occur as complications of otherwise successful pneumothoraces. In all cases, only healthy lung can be expanded with safety.

In summary, it has been shown how the recent developments in chest surgery widen the indications for operation in tuberculous patients, and give a chance of recovery to many patients previously without hope of relief. A discussion of the recent developments in the drug therapy of tuberculosis has been offered and the danger of indiscriminate use of these drugs indicated.

What Every Maine Doctor Should Know About Civil Defense—Continued from page 156

Additional suture material, a Hagar-Mayo or a Masson needle holder, double end nested tissue retractors and bandage scissors should also be included in the kit issued to each surgeon assigned to duty at the Collecting Post.

2. Additional Equipment and Supplies Required for the Collecting Post and the Collecting Post Platoon are as follows:

- a. Fifty litters to be used as replacements for those brought in and left with casualties from the First-Aid Posts.
- b. One hundred blankets (two for each litter).
- c. A supply of extra clothing for patients.
- d. Decontamination facilities suitable for use in event Atomic or Chemical Warfare casualties are received.
- e. A supply of casualty record and treatment forms.
- f. A stockpile of medical supplies and equipment for use as replacements for similar materials used up by the First-Aid Posts and First-Aid Teams.
- g. Litter Racks suitable for supporting stretchers with non-ambulatory patients while they are awaiting transfer by the ambulance platoons and while they are having dressings, splints, etc., checked by the doctors and nurses.
- h. Supports for plasma and blood transfusion bottles.
- i. Two or more Coleman gasoline lanterns.
- j. Bottled gas equipment and bottled gas for use in providing heat in cold weather.
- k. One portable sterilizing unit of type just perfected by the National Sterilizer Company.
- l. A chemical toilet, urinals and bed pans.
- m. An auxiliary water supply.

C. The Ambulance Platoon should have the following equipment and supplies.

1. Vehicle capacity should be sufficient to permit the transfer of 200 patients per hour from each Collecting Post to other installations outside the immediate disaster area. In view of the long distance hauls that would be necessary in most areas of rural Maine, it is felt that the following type of vehicles should be available for operation by each ambulance platoon.
 - a. Ten— $\frac{3}{4}$ ton ambulances, or their equivalent, capable of transporting 4 litter or 8 sitting patients at one time.
 - b. Ten—trucks equipped with litter racks and capable of transporting 4 or more litter cases or 8 sitting cases at one time.
 - c. One—64-passenger bus, or enough smaller buses to provide seating capacity for a similar number of ambulatory cases.
 - d. One passenger car or jeep for use by the ambulance platoon leader or commander.
 - e. A $\frac{1}{4}$ ton truck for transporting supplies and equipment for the ambulance platoon.
2. Gasoline and oil supplies needed for the ambulances and other vehicles.
3. Communication equipment such as short wave radios or walkie-talkie radio equipment.
4. Food handlers equipment such as mobile kitchen, unless this is to be furnished by special food handler units.

APPENDIX C

The table of equipment recommended for the Combination Clearing Station and 60-Bed Surgical Hospital.

Continued on page 164

Refresh...add zest to the hour



What Every Maine Doctor Should Know About Civil Defense—Continued from page 163

A. *List No. 3* which follows includes essentially all the items listed in No. 27—Medical Department Equipment List for 9-314-850 Mobile Army Surgical Hospital Medical Equipment, 60 Bed as published by Department of the Army, Office of the Surgeon General, October, 1948. The Basis of Issue for this list as given below is compiled on the following premises:

- a. Expendable. The quantities of expendable items listed herein are those normally required for operation under average conditions for a period of 10 days.
- b. Nonexpendable. The quantities of nonexpendable items are the maximum authorized to be on hand, unless otherwise directed by proper authority.

Since the remainder of this "C" Appendix is long and space consuming and since it obviously would be of interest only to those relatively few persons responsible for providing the medical supplies and equipment for the Combination Clearing Station and 60-Bed Hospitals, the remainder of this Appendix will not be reproduced here as a part of this publi-

cation. However, this "C" Appendix is available and may be procured upon request to: The State Civil Defense Agency, State House, Augusta, Maine.

The inventory of essential medical supplies and equipment which has just been conducted in all General Hospitals within Maine would seem to indicate that the majority of the hospitals carry from 45 to a 90-day operating supply of these essentials. Therefore, it is believed and it has been recommended that the medium-sized Maine Hospitals, that agree to sponsor the professional and the administrative personnel required to operate a Combination Clearing Station and 60-Bed Surgical Hospital, also agree to provide the initial ten-day operating supplies and equipment from their own hospital stock. The saving in money and in supplies offered by this plan should be obvious to all concerned; and it would not tie up the large amounts of vital medical supplies or result in the inevitable waste from deterioration of certain expendable medical supplies and antibiotics that would otherwise almost certainly come about in the due course of time.



New 2-Way Aid in ACNE

Now hide and treat acne blemishes simultaneously with new AR-EX R.M.S. Lotion. Complexion tinted. Contains resorcinol monoacetate and sulphur in gentle AR-EX Foundation Lotion. Non-astringent.



AR-EX
R.M.S.
Lotion

AR-EX COSMETICS, INC., 1036 W. Van Buren St., Chicago 7, Ill.

Send for Free Sample.

Zemmer...

PHARMACEUTICALS

A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903.

THE ZEMMER CO., Pittsburgh 13, Pa.

MA 5 51

**WHY DON'T YOU
GET YOUR PAY?**

Over 500 physicians and 20 hospitals have increased their incomes by placing their accounts with us for adjustment, in a humane, honest and efficient manner. So can you—let us tell you how. →

Reference: Maine Medical Association Secretary

MEDICAL AUDITING COUNSEL

297 WESTERN PROMENADE, PORTLAND 4, MAINE

**CLIP
AND MAIL**

Without obligation
send me full details concerning your service.

Name

Street

City



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, June, 1951

No. 6

RUPTURED GASTRIC ULCER

An Unusual Complication Following Vagotomy and Gastroenterostomy

JOHN D. SOUTHWORTH, M. D., Radiologist, VAH, Togus, Maine

In the June, 1950, issue of this JOURNAL, I reported a case of bronchogenic carcinoma with predominantly intestinal symptoms which directed our attention away from the few chest signs and symptoms he had. In that article I warned against ignoring symptoms that did not fit a preconceived impression.

A year and six months ago we had another case that taught us a similar lesson. Besides being confusing it was also very unusual, perhaps the only one of its kind to be reported. Even if the case was unique, its lesson has general application.

F. C., a 59-year-old man was admitted on 10/21/49 because of repeated episodes of nausea and vomiting and frequent passage of tarry stool. A review of the records showed a previous admission to this hospital in 1940, at which time a duodenal ulcer was suspected. He apparently got along fairly well until about two months prior to re-entry at which time he began to experience repeated episodes of moderately severe epigastric discomfort, nausea and vomiting, and passage of tarry stools. There was no history of hematemesis. Past history and system review were otherwise essentially negative.

Physical Examination: Revealed a dehydrated, middle-aged man who appeared chronically ill. The chest was clear to percussion and auscultation. The heart was within normal limits. The abdomen was

soft and flat. Moderate tenderness was present in the epigastric region.

Hospital Course: On the third day the patient was suddenly seized with severe epigastric pain and a surgical consultation was obtained. The consultant felt that a perforated ulcer was a likely possibility and recommended transfer to the surgical service. Because of the patient's poor general condition, because over 12 hours had elapsed since the onset of the acute pain, because he appeared to be handling the process fairly satisfactorily and because there was no evidence of pneumo-peritoneum the decision was made to treat him conservatively. Under such a régime all signs of an acute abdomen subsided. On 11/1/49, a gastrointestinal series was interpreted as showing almost complete pyloric obstruction, only a trickle of barium getting through in six hours. His hemogram and blood chemistry were then carefully studied. A marked hypochloremia was found and as an adjunct to his parenteral fluids he was given potassium chloride by mouth, the Levine tube being clamped off for a sufficient period to permit absorption. Only in this manner was it possible to raise the blood chlorides to a satisfactory level. Because of a pronounced hypoproteinemia, he was given several blood transfusions and intravenous protein hydrolysates.

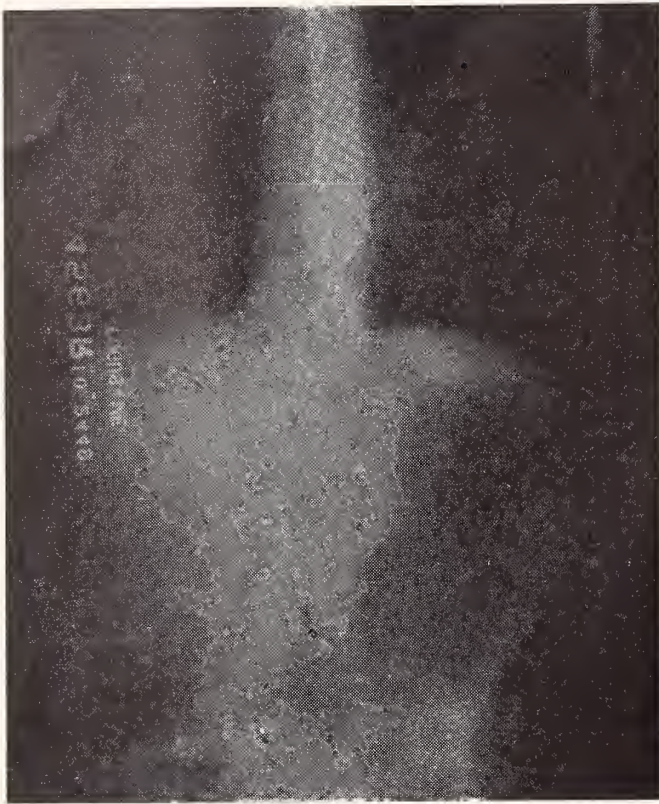


Figure 1

10/24/49—Scout film of the abdomen three days after admission into the hospital showing a moderately gas distended stomach.

On 11/10/49, surgical exploration was carried out under continuous spinal anesthesia. A benign, almost completely obstructing duodenal ulcer was encountered. A vagotomy and posterior gastro-enterostomy were performed as it was felt that the patient had a far better chance of withstanding these procedures than a resection. His post-operative course was uneventful until the fourth day, at which time, his abdomen became markedly distended. A flat plate of his abdomen was interpreted as showing several dilated loops of small bowel. The majority of the evidence pointed to this being an ileus and he was treated accordingly. Although his stoma was obviously patent and peristalsis was also present, his distention persisted despite vigorous treatment.

On 11/15/49, a flat plate was interpreted as showing a marked dilatation of the stomach. On 11/17/49, the patient was seen by Dr. Francis Moore of Boston, Surgical Consultant, who stated that the patient had a post-vagotomy syndrome and strongly advised urecholine. This was procured and administered but the apparent gastric atony and dilatation persisted. On 11/19/49, clinically the patient was much better. Urecholine had been started the night before and he had been getting serum albumin.

No air could be withdrawn through a Levine tube. But when fluid was instilled through the tube, none of it could be recovered. X-rays showed the tip of

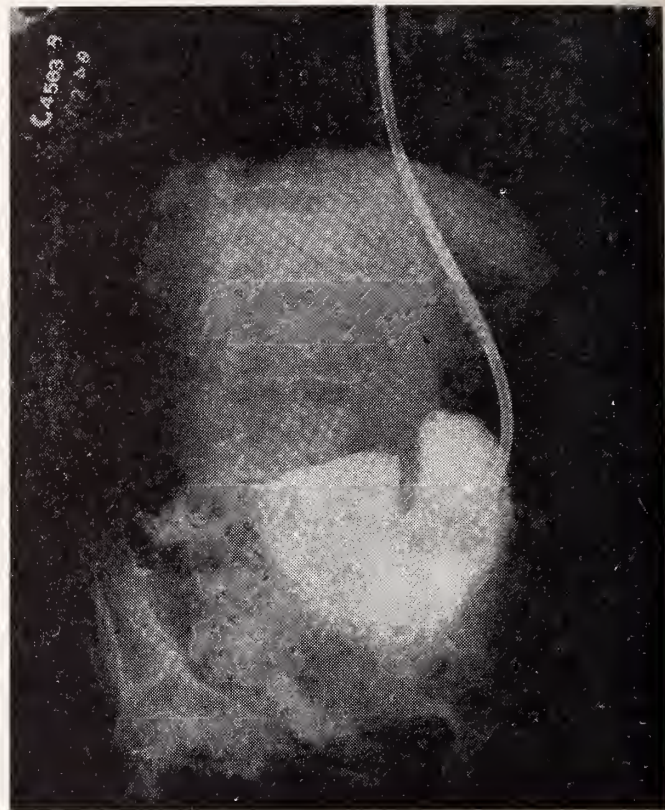


Figure 2

11/2/49—Gastrointestinal study two weeks after admission which shows a dilated stomach. Fluoroscopically there was a prolonged delay before any barium passed the pylorus and then in such small amounts that the duodenal cap was not sufficiently visualized for evaluation. The situation of the pylorus could not be determined.

the tube near the cardia end of the stomach and it was thought that maybe the tip of the tube was not in the stomach at all. When the Levine tube was passed further and X-rays showed the tip of the tube in the center of the gas bubble, still no gas could be withdrawn nor any liquid recovered after it was instilled. The next radiograph taken 11/17/49, showed the tip of the tube below the large gas shadow in a gas containing viscus which was distended beyond recognition. On 11/23/49, the gas bubble was very greatly enlarged and the tip of the Levine tube was still below the bubble shadow. This was interpreted to mean the tube had passed through the gastro-enterostomy stoma into the jejunum. The patient's abdomen was considerably distended and clinically the patient was weakening. It was suggested that the tube be withdrawn and manipulated under fluoroscopic observation. To our surprise all of the gas bubble was found to be anterior to the tube and when a thin solution of barium was instilled, it passed into the gas containing viscus to the left and caudad to the gas bubble.

The explanation was obvious as soon as the correct anatomical relationships were established. What had been considered gas in a distended stomach actually was an increasing amount of intra-peritoneal extra-



Figure 3

11/15/49—Postevacuation film of a barium enema study five days after the posterior gastroenterostomy and vagotomy operation. This was interpreted as: 1—Slightly gas distended stomach with the tip of a Levine tube within it. 2—A dilated loop of small bowel probably duodenum. 3—Normal large bowel.

viscus gas localized in the anterior superior portion of the abdomen. What was considered a dilated gas distended loop of small intestines was compressed stomach. The part of the gastro-intestinal tract from which the gas arose could not be demonstrated.

The patient was immediately operated upon and the above conclusions were verified. When the peritoneum was reached, a trocar was passed through it and about 2000 cc. of gas was withdrawn with marked reduction of abdominal distention. On opening the abdomen a mixture of barium and liquid was present. Through a small opening a fine trickle of barium containing liquid was oozing. The anatomical relationships of the organs were difficult to establish. But it was the opinion of both the surgeon and his assistant that the opening was proximal to the pylorus on the anterior surface of the gastric antrum. A jejunostomy was performed and three rubber drainage tubes were left in the abscess cavity.

After the second operation the patient was fairly toxic but did moderately well. But four days after this operation he became more toxic and confused. On 12/3/49, 13 days after the second operation, he was disoriented and tore off his dressings and pulled out his drainage tubes. In spite of being given special day and night attendants, he pulled off his dressings



Figure 4

11/17/49—Scout film of the abdomen seven days after the gastroenterostomy and vagotomy operation. Interpreted: 1—Dilated stomach. 2—The tip of a Levine tube in a dilated loop of small intestines probably duodenum having passed through the gastroenterostomy stoma.

a number of times. He was given supportive treatment with frequent blood transfusions, readministration of gastro-intestinal and parenteral fluid, antibiotics and adrenal cortical extract, the patient gradually went downhill. He survived one attack of pneumonia in the right lower lobe. But on 1/7/50, he again developed pneumonia in his right lower lobe and died 1/10/50.

The course of events seems to have been as follows:

1. A supposed duodenal ulcer which had gradually produced an increasing amount of obstruction and a gradually increasing gastric dilatation.
2. Perforation of his ulcer which sealed itself spontaneously.
3. Posterior gastro-enterostomy and vagotomy for gastric dilatation and partial obstruction.
4. Reperforation of his ulcer or perforation of another ulcer probably proximal to the pylorus with confusing clinical and radiological findings.

At post-mortem examination around the pylorus was a mass of dense adhesions due to the original infection and reinfections. It was impossible to find the perforation. So we are forced to fall back on the surgeons' observations at the time of operation.

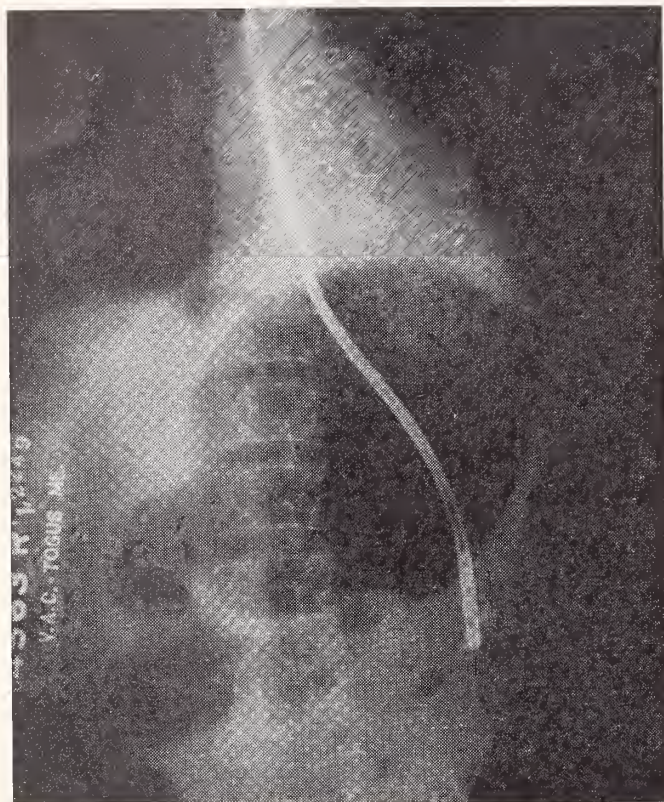


Figure 5

11/22/49—Scout film of the abdomen. Interpretation: The gas distending the stomach has increased in amount. The tip of the Levine tube is still through the stoma in the small intestines.

DISCUSSION

Vagotomy alone has been greatly restricted, almost given up. Gastro-enterostomy supplementing vagotomy had its day. But this, too, because of the frequent development of marginal ulcers, is now used in only a few selected cases. Now subtotal gastric resection, is in vogue and seems to be the operation of choice. Physiologically the removal of the distal portion of the stomach with its acid secreting cells is logical and reports from surgical clinics show a sharp drop in marginal ulcers following this procedure.

The complication of a perforating ulcer following vagotomy is rare. With the large, often tremendous, gastric dilatation after vagotomy it would be logical to expect post-operatively a large number of perforated ulcers. But such is not the case. There is not complete agreement as to whether or not the tendency to gastric distention is greater following vagotomy alone than when following vagotomy plus gastro-enterostomy. The majority of observers report less gastric distention following vagotomy combined with gastro-enterostomy. Table Number 1 which is a compilation taken at random from a number of prominent clinics shows this fact. Only a few perfo-



Figure 6

11/23/49—Scout film of the abdomen after instilling a small amount of barium into the stomach through the Levine tube — Right posterior projection. The collection of gas is not in the stomach but in the superior anterior abdominal cavity. The stomach is outlined by a small amount of barium. The tip of the Levine tube is within the stomach.

rated duodenal ulcers following vagotomy have been recorded. No perforated gastric ulcers, following vagotomy have been reported.

A perforated ulcer is painful, usually extremely painful. The question as to why patients following vagotomy are immediately relieved of pain symptoms has not been satisfactorily answered. The next question is perhaps closely allied to the previous one. Why is pain only a minor symptom and sometimes absent when perforation occurs following vagotomy. Alvarez¹ in an article asks this question, "Does vagotomy leave the stomach so anesthetic that the perforation might not be felt?" He answers, "Probably not." Wolf and Andrees² in their experimental work with animals come to the following conclusions: 1. Tactile stimuli were not felt but pressure and pain sensations could be elicited. 2. When such painful stimuli were prolonged nausea ensued. 3. The gastric mucosa was found sensitive to hot and cold stimuli. 4. The sensibility of the stomach, as determined by these tests was not altered by vagotomy. But does this equally apply to man? Maybe not. Further study on man is necessary before these questions can be answered.

TABLE NO. 1
Gastric Distention (Retention)

Type of Operation	Vagotomy Alone	Vagotomy with Gastro-enterostomy	Vagotomy with Pyloric Exclusion	Vagotomy with Sub-total Gastric Resection
Grimson et al. ³ Duke Univ. Hosp. Clinic, 1947	Cases 36 Immed. Late 56% 25%	21 Immed. Late 34% 24%		
Kipen et al. ⁴ 1949	Cases 10 75%	32 50%		0%
Jones et al. ⁵ 1947	Cases 16 Equal	10 Equal		3
Vaughn ⁶ 1949	Cases 16 Equal	15 Equal		
Collins et al. ⁷	Cases 50 Greatest in 8 pts.			
Walters et al. ⁸ 1947		Cases 15 27%		
Ruffin ⁹ 1948	Common	Rare		
Colp ¹⁰ 1950	Cases 49%	37 8%		
Dragstedt et al. ¹¹ Chicago Univ. Hosp. Clinic, 1949		P. O. Manage- ment Easier		

Our case is of interest from two points of view. First, it probably was a perforated gastric ulcer following vagotomy. It is the first case of its kind to be reported. Secondly, the X-ray findings were so easy to misinterpret that this report may prevent others from making a similar error.

If we and our attending had not been so sure as to what was happening, we would have discovered the true state of affairs sooner. It would have been simple enough to determine the presence of free intra-peritoneal gas, had the possibility been entertained.

This impresses upon us that we should never be too "cock sure" in medicine. But instead a careful differential diagnosis should be made. By so doing pitfalls will be avoided.

SUMMARY

1. A case of probable perforated gastric ulcer following vagotomy and gastro-enterostomy is reported.
2. Confusing X-ray findings are described.
3. A brief review of experimental work on this subject is given.
4. A lesson applicable to all branches of medicine is drawn.

BIBLIOGRAPHY

1. Alvarez, W. C.: Sixty years of Vagotomy: Review of 200 Articles. *Gastroenterology*, 10:413-441, March, 1948.

2. Wolf, Stewart, and Andrees, William DeWitt: The Effect of Vagotomy on Gastric Secretion. *Gastroenterology*, 8:4, April, 1947.

3. Grimson, K. S., Baylin, J. J., Taylor, H. M., Hesser, F. H., Rundles, R. W.: Clinical Evaluations of Complications Observed after Trans-thoracic Vagotomy. *Arch. of Surg.*, 55:2, August, 1947.

4. Kipen, Charles S., Stevens, G. Arnold: Early and Delayed Clinical Effects of Vagotomy for Peptic Ulcer. *Arch. of Surg.*, 59:4, October, 1949.

5. Jones, T. N. P., Grose, William E.: Symposium on Vagotomy for Peptic Ulcer. *The Johns Hopkins Hosp. Bull.*, 81, 1947.

6. Vaughn, Arkell M.: Vagotomy in the Treatment of Gastro-intestinal Ulcerations. *Illinois M. J.*, 95:343-349, June, 1949.

7. Collins, E. W., and Stevens, C. W.: Bilateral Vagotomy in the Treatment of Peptic Ulcer. *Gastroenterology*, 10:2, Feb., 1948.

8. Walters, Waltman, Neibling, Harold A., Bradley, William F., Small, John T., Wilson, James W.: On Gastric Neurectomy — Anatomic and Physiologic Studies with Favorable and Unfavorable Results in the Treatment of Peptic Ulcers. *Arch. of Surg.*, 55:2, August, 1947.

9. Ruffin, J. M., White, D. P., Jr.: Vagotomy: Present Status. *Gastroenterology*, 10:607-616, April, 1948.

10. Colp, Ralph: Surgical Management of Duodenal Ulcer. *Surg. Gyn. and Obs.*, 91:306-310.

11. Fritz, J. M., and Dragstedt, S. R.: Vagotomy: Indications and Results. *Modern Medicine — Minneapolis*, 17:20, October, 1949.

"Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration."

PEPTIC ULCER AND THE PITUITARY ADRENAL SYSTEM

FENNELL P. TURNER, M. D.,* Togus, Maine

"The history of the cause of the simple ulcer of the stomach is surrounded in profound obscurity."

Jean Cruveilhier¹

Peptic ulcer is a commonplace medical problem, the pathogenesis of which is incompletely understood. Following the classical description by Cruveilhier early in the 19th Century, an ever-increasing interest has been displayed in this disease, and many theories have been proposed as to the etiology.

Although active gastric and duodenal ulcers are occasionally found in patients with low gastric acidity, it is probable that no cases of peptic ulcer have ever been found in the complete absence of gastric juice. In recent years, therefore, increasing emphasis has been placed on the psychosomatic aspects of peptic ulcer, it being generally agreed that the typical ulcer patient is one who exhibits gastric hypersecretion and hypermotility due to an increase in activity of the parasympathetic nervous system. The results obtained in the past few years through bilateral vagotomy have been of great importance in emphasizing this cephalic phase of gastric activity. It seems likely, however, that a secretory hypertonus of the vagus nerves² does not represent the whole answer to the problem. In particular, there is the possibility that in order for acute ulceration to take place a decreased resistance of the gastric or duodenal mucosa must first be present. The endocrine relationships of this disease is another subject which is in need of continued study, peptic ulcer, for example, being several times as common in the male as in the female.

The purpose of this paper is to present a brief summary of the literature on the pituitary-adrenal system as it may relate to the peptic ulcer problem, and to present a speculative interpretation of the possible relationship of these endocrine organs to the development and perpetuation of the ulcer process.

It is evident that the chronic peptic ulcer must begin as an acute ulcer or erosion. It is also evident that these acute ulcers, whether single or multiple, may or may not heal. If they do heal, they may or may not be followed by the occurrence of additional acute ulcers or erosions. The chronic ulcer, however, is not so frequently multiple as is the acute ulcer, and it is often found in a more characteristic location. The relationship between these various aspects of the problem remains largely obscure. The following discussion will be presented with this in mind, and an attempt will be made to show, not only the impor-

tance of a disturbance of the pituitary-adrenal system in the development of acute ulcerations, but also in the further development of chronicity of the ulcer process in persons who often present in one respect or another what is interpreted as the peptic ulcer diathesis.

STRESS AND PEPTIC ULCER

Stress, it has been recently shown, is of great importance in the initiation of an increased activity of the pituitary-adrenal system. In response to this stimulus, ACTH is secreted by the pituitary, which in turn stimulates the adrenal cortex to secrete large quantities of 11-17 oxysteroids. This hormonal relationship has been shown to be of great importance in the maintenance of homeostasis and the protection of the organism against injury.

Stress, whether emotional, mental or physical, has also for many years been associated pathologically as well as clinically with the development of acute peptic ulceration and the reactivation of chronic peptic ulcers. It has long been observed that acute ulcerations and erosions are not infrequently found in persons who have died following severe trauma as well as various infections and other illnesses. Curling's ulcer is one such example. It has been theorized that such acute ulcerations are related in some way to acute adrenal insufficiency. Selye^{3, 4} has also stated that ulcers are a common finding in the alarm reaction. Acute ulcers for many years have been associated with the development of acute adrenal insufficiency in experimental animals. In 1905, Cioffi⁵ reported that in rabbits dying after bilateral adrenalectomy hemorrhage and ulcerations were found throughout the stomach. These observations have been confirmed repeatedly^{6, 7, 8, 9} and in some instances duodenal ulcers of the characteristic "kissing" type have been found.

On the other hand, no evidence has as yet been unearthed linking peptic ulcer with diseases of the pituitary gland. It has been shown, however, that the pituitary gland and the pituitary-adrenal system may be indirectly affected by stimuli originating in the central nervous system. The development of acute ulcers has been reported following cranio-cerebral trauma, in cases of brain tumor, and in many persons who have died following neurosurgical procedures. Harvey Cushing¹⁰ believed that these ulcers were re-

* Surgical Service, Veterans Administration Center, Togus, Maine.

lated to injury and alteration in the midbrain with subsequent changes in the vegetative nervous system. Although some experimental evidence has been developed along these lines; the subject remains controversial. Certainly the appearance of a typical chronic peptic ulcer in any of these cases has rarely been reported.

Because of the evidence that stress is not only of importance in the activation of the pituitary-adrenal system but that it also may be of importance in the development of peptic ulcers in susceptible persons, and in view of the suggestive relationship between peptic ulcer and pituitary-adrenal disease as outlined above, it was thought worth while to carry out a study of peptic ulcer patients by means of the four-hour eosinophile-response test described by Thorn et al. in 1948.¹¹ This was done, and the results have been reported elsewhere.¹² It was found in this study that the majority of patients with active peptic ulcers showed considerably less than the established normal (50%) drop in eosinophile count in response to test doses of ACTH or epinephrine. It was concluded that the relative unresponsiveness of these people was either the result of exhaustion of the available supply of adrenal cortical hormones, or due to a state of refractoriness of the pituitary-adrenal mechanism secondary to long, continued or severe stress. The exact reason for this finding is not clear, nor does it necessarily suggest that the pituitary-adrenal system is etiologically related to the formation of ulcers.

In spite of this apparent relationship between stress, acute adrenal insufficiency and peptic ulcer, chronic adrenal insufficiency per se cannot be correlated with peptic ulceration. None of the 43 patients studied in the experiment quoted above showed any evidence of Addison's disease or of any other endocrine disorder. At the same time, it is recognized that peptic ulcers are not a common accompaniment of Addison's disease, and that gastric hyperacidity and hypermotility are not commonly associated symptoms.

During the years 1930-1946, 29 cases of Addison's disease came to autopsy at the Presbyterian Hospital in New York. Acute erosions and ulcerations were noted in four patients. In only one patient was a chronic ulcer found and this patient had very recently developed Addison's disease subsequent to the massive invasion of the adrenal glands by metastatic bronchogenic carcinoma of squamous-cell type.¹³ A further factor in favor of chronic adrenal insufficiency not being implicated in the development of gastro-duodenal ulceration is furnished through study of the lymphatic tissues in these two conditions. In Addison's disease, the lymphoid tissue is usually either normal or hyperplastic, while in many of the peptic ulcer cases observed by the author lymphoid atrophy was found. Atrophic changes in fixed lymphoid tissues are said to be a feature of the adaptation syndrome (Selye) and Dougherty and White¹⁴

believe them to be the direct result of prolonged adrenocorticotrophic hormonal activity.

THEORETICAL RELATIONSHIPS BETWEEN PEPTIC ULCER AND PITUITARY-ADRENAL SYSTEM

Although the data presented above does not furnish any clear cut evidence of an etiological relationship between the pituitary-adrenal system and peptic ulcer, it is nevertheless tempting to theorize that acute peptic ulcerations are in some way associated with the development of periods of temporary acute adrenal insufficiency of maximal degree. And paradoxically, because of the psychosomatic relationships in the usual peptic ulcer patient, it is also postulated that a state of relative hyperadrenocorticism is more usually present during the chronic stage of the disease, adrenal cortical failure only supervening when the stress is of such extreme severity, or of such long duration, as to cause temporary failure of the pituitary-adrenal mechanism. As ACTH and cortisone have been shown to delay healing of wounds in some patients¹⁵ and to delay fibroblastic proliferation in experimental animals,¹⁶ it follows that perhaps the indolence in healing and characteristic chronicity of the typical peptic ulcer may somehow be related to this mechanism, as well as to the well established effects of peptic digestion. It has been said that the greater the degree of stress to which an animal is subjected, the greater is the amount of cortical hormone which is required to inhibit the pituitary-adrenocorticotrophic activity. Sayers and Sayers,¹⁷ however, have found that after a severe stress (1 mg. of histamine per 100 gm. body weight) not even large doses of cortical hormone were able to bring about complete inhibition of pituitary activity. This raises the possibility that under conditions of severe and prolonged stress there may be an excessive liberation of both pituitary and adrenal cortical hormones not regulated by normal physiological checks and balances. It is conceivable, therefore, that after prolonged stress in the peptic ulcer patient partial physiological exhaustion of the pituitary-adrenal mechanism would eventually take place, resulting in a state of unresponsiveness to test doses of epinephrine and ACTH. The intermittency of stress in peptic ulcer disease together with the postulated intermittency of endocrine activity would help to explain why, if this theory is correct, Cushing-like symptoms of adrenal cortical hyperactivity are not more frequently seen in these people. *In the group of 43 peptic ulcers studied in this survey, very few other associated diseases were found to be present. Hypertension was present in 7 patients, and diabetes mellitus in 2. One patient had had hyperthyroidism until she was treated by thyroidectomy, and another case has recently been admitted to a psychiatric institution for diagnosis and treatment.

The unexplained and striking predominance of peptic ulcer in the male and the rarity of active peptic ulcers during pregnancy has stimulated the interest of observers over a long period of time. Sandweiss, who has been interested for many years in the possibilities of an endocrine disturbance in the peptic ulcer patient, has theorized¹⁸ that as there is an increased pituitary activity in pregnancy, with an increased output of ACTH, cortisone, therefore, would be of value in the treatment of peptic ulcer. It is the feeling of this writer that cortisone would theoretically be of benefit only during the stage of physiological exhaustion of the adrenal cortex, and would, therefore, be effective only in the prevention of the acute erosion or the first stage of the ulcer process. The administration of ACTH or cortisone to a patient in whom the ulcer process had become well established might, on the other hand, be actually harmful. That this might be so is also suggested by several case reports^{19, 20} which appeared in the literature while the study mentioned above¹² was in progress.

MECHANISMS FOR THE DEVELOPMENT OF THE ACUTE ULCER

Many observers have theorized that the circulatory changes and hemoconcentration which develop secondary to the shock which supervenes in the experimentally adrenalectomized animal is the important factor in the development of these acute ulcerations. This belief has been given recent support by the observations of Friesen and Wangenstein,²¹ who have demonstrated the importance of hemoconcentration in the development of acute peptic ulcerations in animals following experimental burns. They have also been able to prevent the development of such ulcerations through the maintenance of an adequate blood volume. On the other hand, it is conceivable that acute ulcerations may also be related to a local lowering of resistance in the mucosal cells of the stomach and duodenum. Many years ago, Swingle and Pfiffner²² postulated that adrenal cortical extract was important in the maintenance of normal capillary permeability. The exact mode of action of adrenal cortical extract and its various steroid components such as cortisone is still not known. However, it is considered likely that they afford some sort of protection to the cells themselves, which would thereby decrease their susceptibility to injury. An insufficient local supply of these substances would then conceivably make the gastro-duodenal mucosa more susceptible to peptic ulceration. This development could be expected to take place in anybody who has acute adrenal insufficiency. It has been said that peptic ulcers probably occur at one time or another in from 5% to 12% of the population.²³ This fact in itself would indicate that the development of acute peptic ulcers is in the nature of a response to injury which is common to many if not all people.

THE LOCATION OF THE CHRONIC ULCER

We now come to the last phase of the ulcer problem, i.e., the characteristic location of a majority of ulcers in the duodenum, antrum, and along the lesser curvature of the stomach, and the associated problem of the characteristic size of the usual peptic ulcer. Here the probable role of hyperactive vagal stimuli should again be emphasized. Hyperacidity and hypertonicity with spasm of the muscularis are probably of great importance here, associated perhaps with vascular spasm in small nutrient vessels or a disturbance in some vascular shunting mechanism as was recently described by Barclay and Bentley.²⁴

SUMMARY AND CONCLUSIONS

1. The possible relationships between the pituitary-adrenal system and the pathogenesis of the usual peptic ulcer have been discussed.
2. It is theorized that the acute ulcer is a local gastro duodenal response of generic nature to a non-specific injury and related in some way to a period of acute adreno-cortical insufficiency.
3. It is further theorized that in the presence of continuing injury this ulcer exhibits indolence in healing due to the combined action of peptic digestion, and hormonal inhibition secondary to a state of relative adrenocortical hyperactivity.
4. The possibility of reactivation of old ulcers and the development of new areas of ulceration is inherent in this theory, in view of the tendency of the typical peptic ulcer patient to be subjected to intermittent and frequently recurring periods of stress.
5. The importance of the cephalic phase of gastric activity has been reemphasized.
6. No attempt was made in this paper to distinguish between the duodenal and gastric types of peptic ulceration; nor was any attempt made to discuss the relationship of other local and systemic etiological factors such as trauma, infection, allergy and disturbances in the gastric or intestinal phases of gastric activity, it being thought probable that peptic ulcer is a disease which has several different primary as well as contributory etiological factors.

"Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration."

REFERENCES

1. Cruveilhier, Jean: "Anatomie Pathologique du Corps Humain," Paris, 1830-1842, quoted from Major, Ralph H. — *Classic Descriptions of Disease*, Springfield, Illinois, 1932, C. C. Thomas Co.

2. Dragstedt, L. R., and Woodward, E. R.: Appraisal of Vagotomy for Peptic Ulcer after Seven Years. *J. A. M. A.*, 145:795, 1951.
3. Selye, H.: The Alarm Reaction (an abstract of a paper read at a meeting of the Montreal Physiological Society). *Canad. M. A. J.*, 34:706, 1936.
4. Selye, H.: General Adaptation Syndrome and Diseases of Adaptation. *J. Clin. Endocrinol.*, 6:117, 1946.
5. Cioffi, E.: Smidollamento delle Capsule sur-renali in due tempi. *Clin. Med. Ital.*, Milan, 44:370, 1905.
6. Mann, F. C.: Gastric Ulcers. *J. Exper. Med.*, 24:329, 1916.
7. Ivy, A. C.: Physiology of Stomach, Studies on Gastric Ulcer. *Arch. Int. Med.*, 25:6, 1920.
8. Rogoff, J. M., and Stewart, G. N.: (A) Studies on adrenal insufficiency in dogs; control animals not subjected to any treatments. *Am. J. Physiology*, 78:683, 1926. (B) Studies on adrenal insufficiency; influence of pregnancy upon survival period in adrenalectomized dogs. *Am. J. Physiology*, 79:508, 1927.
9. Oldberg, E.: Attempt to auto-transplant the adrenal. *Am. J. Physiology*, 91:275, 1929.
10. Cushing, H.: Peptic ulcers and the Interbrain. *Surg. Gynec. and Obst.*, 55:1, 1932.
11. Thorn, G. W., Forsham, P. A., Prunty, F. T. G., and Hills, A. G.: Tests for Adrenal Cortical Insufficiency; response to pituitary adrenocorticotrophic hormone. *J. A. M. A.*, 137:1005, 1948.
12. Turner, F. P.: Eosinophile Responses to Epinephrine and ACTH in Peptic Ulcer. *Gastroenterology* (in Press).
13. Turner, (F. P.: (Unpublished observations).
14. Dougherty, T. F., and White, A.: Influence of Hormones on lymphoid tissue structure and function. Role of pituitary adrenotropic hormone in regulation of lymphocytes and other cellular elements of blood. *Endocrinology*, 35:1, 1944.
15. Ragan, C., Grokoest, A. W., and Boots, R. H.: Effect of adrenocorticotrophic Hormone (ACTH) on Rheumatoid Arthritis. *Am. J. Med.*, 7:741, 1949.
16. Ragan, C., Howes, E. L., Plotz, C. M., Meyer, K., and Blunt, J. W.: Effect of Cortisone on Production of Granulation Tissue in Rabbit. *Proc. Soc. Exper. Biol. and Med.*, 72:718, 1949.
17. Sayers, G., and Sayers, M. A.: The Pituitary-Adrenal System. *Am. N. Y. Acad. Sciences*, 50:552, 1949.
18. Sandweiss, D. T.: The Beneficial Effect of Pregnancy on Human Peptic Ulcer and the beneficial Anti-ulcer effect of the pituitary-adrenal complex on experimental ulcers—a possible explanation. *Harper Hosp. Bull.*, 7:228, 1949.
19. Beck, J. C., Browne, J. S. L., Johnson, L. G., Kennedy, B. J., and MacKenzie, D. W.: Occurrence of Peritonitis during ACTH Administration. *Canad. M. A. J.*, 62:423, 1950.
20. Habif, D. V., Hare, C. C., and Glaser, G. H.: Perforated Duodenal Ulcer associated with Pituitary adrenocorticotrophic Hormone (ACTH) Therapy. *J. A. M. A.*, 144:996, 1950.
21. Friesen, S. R., and Wangenstein, O. H.: Role of hemocentration in production of gastric and duodenal ulcer following experimental burns. *Proc. Soc. Exper. Biol. and Med.*, 64:81, 1947.
22. Swingle, W. W., and Pfiffner, J. J.: The adrenal Cortical Hormone. *Medicine*, 11:371, 1932.
23. Ivy, A. C.: The Problem of Peptic Ulcer. *J. A. M. A.*, 132:1053, 1946.
24. Barclay, A. E., and Bentley, F. H.: The Vascularization of the Human Stomach. *Gastroenterology*, 12:177, 1949.

PHYSICAL MEDICINE AND REHABILITATION FOR PATIENTS WITH HEMIPLEGIA

L. R. BURNHAM, M. D.*

The problem of rehabilitation of the hemiplegic is one of the increasingly persistent situations which the physiatrist may expect to encounter. The increasing stress and strain of living with its physical and mental upsets all are contributory factors to the precipitation of such a condition, not only in the aged but also in the middle-aged and, not infrequently, the young.

The concept of treatment of this condition has markedly changed during the past decade. This change has been almost entirely along the lines of Physical Medicine Rehabilitation.

Formerly, the patient suffering with a cerebral vascular accident was put to bed with sedation and an ice cap. The fatalistic attitude was that patient might live or death might ensue. No thought of treatment was usually given beyond the acute situation. If locomotion eventually returned, the extremities were so atrophied from disuse that results were extremely poor. The upper extremity was usually deformed by

contractures and joint fixations of hand, wrist, elbow and shoulder were the rule. Almost invariably the patient was kept in bed until he or she insisted on arising. Usually, if the patient were insistent enough, he was lifted out of bed onto chair or commode and lifted back to bed. He was not encouraged in fact, he was discouraged, from helping himself. Today, the opposite is true. We feel he should be encouraged to exert himself toward self care in any way possible such as feeding, shaving, and so on.

With the present trends toward rehabilitation, every hemiplegic deserves care beyond the point of life saving which, in many cases, is where the physician in charge of the case has stopped in the past. Approximately seventy-five percent of the fatalities in cerebral vascular accidents occur in the first two weeks. Perhaps twenty per cent additional will occur within the first two months. (This is according to M. E. Houston, *Practical Aspects of Cerebral-Vascular Accidents*, *N. Y. State Journal of Medicine*, Nov. 1, 1948.)

* Chief, Physical Medicine Rehabilitation Service, Veterans Administration Center, Togus, Maine.

Prognosis as to the future in cerebro-vascular accidents depends on the functions remaining, along with consideration of the site, nature and extent of the lesion. Surgery is indicated and sometimes possible in diagnosis of subdural hemorrhage, brain tumors, brain abscess, and in some patients who after recovery from the critical shock condition show signs of increased intracranial pressure. Those who are to survive will recover some degree of psychic, motor and sensory functions.

Physical Medicine Rehabilitation will provide much to assist the recovery of these patients. Treatment should be started as soon after the accident occurs as possible, that is, as soon as the patient's symptoms will permit. In uncomplicated cases this should be within the first few days instead of waiting weeks as has been customary in many instances.

The general aims of Physical Medicine Rehabilitation treatment are to prevent deformity by maintaining flexibility in soft structures and joints of the affected parts; to aid the patient toward early active use of the paralyzed parts as soon as the functional physiologic processes permit and to give the patient psychic rehabilitation within limits of his cerebral injury. This should include a philosophy of hope toward his recovery and further usefulness.

Treatment toward prevention of deformity and ultimate restoration of function should be instituted early. I repeat this because it is of extreme importance and even recently has been neglected. Bed posturing plays an important part. The nurses should be instructed to place pillows and sandbags to support the extremities against the positions which tend to the usual deformities. These deformities are flexion limitations in hip and knee, equinovarus of the foot, internal rotation of the hip due to spasticity of internal rotators, restraint of abduction due to adductor spasm and external rotation often is found in the flaccid state, flexion limitations of elbow, wrist and hand. Tight pectoral muscles may limit flexion and abduction at the shoulder. If deformity seems uncontrollable by pillows and sand bags, resource to splinting should be had without hesitancy. A molded splint to keep hand and wrist in extension, a molded splint to keep foot in dorsi-flexion and prevent shortening of the Achilles tendon, also molded splinting will best overcome the tendency to equinus and varus. Attendants must be impressed with the importance of these supports and see that they are in position following the routine of daily nursing care.

The joints, both those involved in the hemiplegia and those uninvolved are to be put through the normal range of joint motion in turn, several times daily. In the uninvolved parts, this may be done actively and in the involved parts by passive motion preceded by heat. Spasticity may be reduced by means of hot packs or luminous heat. Caution must be used as

patient's speech may be inadequate to complain of too much heat and also, his heat perception may be dulled.

The motions of particular importance in the upper extremity aim to strengthen the weak extensors and to relax the stronger flexors. The person doing the exercises must be cautioned of the limitations of motion in normal joints so as to safely carry out the routine. If, for example, abduction of the shoulder is carried out beyond ninety degrees, it must be understood that: unless external rotation of the shoulder with the shoulder carried forward as the humerus is further flexed above the head, inflammation may occur causing a peri arthritis of shoulder joint. This frequently occurs. Patients must be taught how to acquire maximum relaxation of the spastic muscles. Since each case will vary as to the amount of brain damage, the exercises will have to be adjusted accordingly. In the beginning, exercises should be carried out for a single joint, the other joints being uncorrected. For example, first with the shoulder in neutral position, the elbow is flexed and extended through the full range of motion. Then with the elbow in position of flexion, the shoulder is abducted. Next, with the elbow in flexion the wrist is extended and flexed. Exercises are then repeated with movements of two joints together. More complex activities may be carried out as the sensorium clears and these activities may be carried out in conjunction with the normal extremity. For example, the involved arm may be exercised by means of an overhead pulley arrangement. The uninvolved arm supplies the motor power and if the grasp of the involved hand is insufficient, it may be strapped to the handle by means of a glove strap arrangement. The tonic neck reflex reported by Magnus and De Kleign, Walsh, Davis and others of the Institute of Rehabilitation and Physical Medicine, N. Y. U., Bellevue Medical Center, indicates that there is a definite increase in strength and degree of elbow extension when the face is turned toward the hemiplegic side. This reported finding should be kept in mind when exercise of the upper extremity is undertaken.

Similar exercises are carried out for lower extremity, removing splints during exercise, but carefully replacing them after its completion if indicated. In the instance of lower extremity exercise, too much emphasis must not be placed on the recumbent position. Practice should be started as soon as possible in the standing position. Muscle re-education in hemiplegia involves group re-education in contradistinction to peripheral nerve palsies which cause individual muscle paresis. The patient should be instructed to attempt coordinated movements of part involved. Imbalances due to diverse causes in different cases will be apparent. Spasticity will be present in some

groups of muscles. Spasticity may be present in both flexors and extensors of a part and present itself as rigidity. A loss of proprioceptive reflex and position sense will interfere with orderly movement.

The upper extremity shows usually less tendency to recover than the lower because the demands on the upper are more numerous and complex. Walking is comparatively simple as compared with the use of the arm and hand.

Spastic muscles should be stretched gently, smoothly, but firmly to overcome tending to contracture. Such stretching should be done after application of heat and light massage. Weak muscles may be exercised by electrical stimulation alternated with under water exercises. As they increase in strength, resistive exercises may be instituted. The high resistance, low repetitive exercises as outlined by De Lorne will increase strength and as the result is obtained, high repetitive, low resistance, exercises may be used. These latter, while of little value in increasing strength, are of great value for developing endurance. After strength is developed, endurance may follow.

When the patient is able to cooperate and is coordinated, he should be retaught balance as soon as possible. This may be done by standing with two chairs, at the foot of bed, in walker or parallel bars. After balance comes walking instructions. This may be done in usual manner with walking crutches, one crutch, or cane and frequently he will go on to ambulation without support as his confidence and strength develop.

If, in spite of splinting, there is a deformity such as foot drop, a short brace should be fitted before ambulation. With extreme spasm of the posterior calf, this could be used as a detriment to deformity at other times, as well as when patient is actively walking.

Rising from a chair should be taught with a chair which permits the patient to place his sound foot beneath the chair. Then he will flex the trunk until balance is well forward, push up by extending trunk and legs simultaneously. This is a great help toward self care and restores much to patient's confidence.

Throughout the period of rehabilitation patients must be made to realize that the outcome of treatment depends largely on themselves. Improvements may continue for months or even a year or more after the onset of the episode.

The upper extremities usually lag in the rehabilitation program as mentioned above and it is here that occupational therapy will be of great value to the patient. Wood sanding, leather punching, weaving on loom which is rigged for resistance, and operation of hand printing press are a few of the activities which will give training in strength and coordination in grosser movements and prepare for more deftness

and smoothness in the accomplishment of finer precision in movement. Here, too, is the opportunity for the high repetitive exercises for the lower extremity mentioned above by means of the bicycle saw which will train both extremities simultaneously in strength and coordination if properly adjusted. For further details of occupational therapy with special reference to the upper extremity the article in the *American Occupational Therapy Journal*, Vol. III, No. 6, by Covalt, Yamshon, and Nowicki is recommended. Occupational Therapy may also serve as a testing ground in exploration of manual possibilities for the patient for further training, as well as a mental stimulation to the patient to increase his efforts toward rehabilitation. Patients released from active treatment must have incentive for living whether for monetary gain, hobby, or recreation.

It is important throughout the rehabilitation program to keep in mind the objective of self care. This includes dressing, bathing, shaving, feeding, toilet habits, as well as ambulation and more obvious activities. It is the little things that are annoying and prone to be overlooked. The Occupational Therapist and Corrective Therapist should remember it is more important that the patient learn these self help aids than it is to lift a massive weight or weave an enormous rug.

Speech may be deficient in the hemiplegic. If a speech therapist is available, so much the better but few medical facilities have this advantage and the treatment thereof must be carried out by other personnel. If this is to be done by untrained personnel then it should be under very close medical supervision. Encouragement is one of the most important factors in the re-education of these patients. They must be made to appreciate that re-education will be time consuming and tedious. We must be patient and the patient must be tolerant and cooperative. The results of the combined efforts will be directly proportionate to the time and effort he actively exercises.

It is to be anticipated that at least one-half of these patients will be capable of self care to a greater or lesser degree, that is dress, undress, bathe, walk and participate in activities usual to home living. Of these, a certain small number will be able to return to gainful work of some type.

It has been stated that the objectives of rehabilitation are four in number, namely:

1. Return to gainful occupation of patient.
2. Self care by patient.
3. Shorten hospitalization of patient.
4. Reduce possibility of rehospitalization of patient.

It is felt that in no disease or injury situation can all these objectives be met in every case. In some

EDITORIAL

Art — Hobby Exhibit

The Maine Medical Association will hold its first Art—Hobby Exhibit at the Poland Spring House, June 17, 18 and 19, during the 97th Annual Session.

A committee, consisting of the following members, has been appointed to take charge of this exhibit :

Julius Gottlieb, M. D., *Chairman*

Moses F. Lubell, M. D., *Co-Chairman*

Waldo A. Clapp, M. D.

Robert W. Belknap, M. D.

Franklin F. Ferguson, M. D.

Frederick R. Carter, M. D., *Secretary*

Association members who are interested in participating in this exhibit have been urged to write to the Secretary relative to their particular entries. The response has been a little bit disappointing. However, we have the following participants and entries listed to date :

Julius Gottlieb, M. D., Lewiston—several oil paintings.

John H. Allen, M. D., Cape Elizabeth—two paintings.

Arnold W. Moore, M. D., Augusta—paintings.

David K. Lovely, M. D., Portland—photography.

Oliver W. Turner, M. D., Boothbay Harbor—"chains, the links of which I personally designed and wrought by hand in silver."

Linus J. Stitham, M. D., Dover-Foxcroft—two hand painted lamps and a tray.

I understand, also, that Dr. Waldo Clapp, of Lewiston, is to participate and that Dr. Lubell has some excellent paintings, which I hope will be entered.

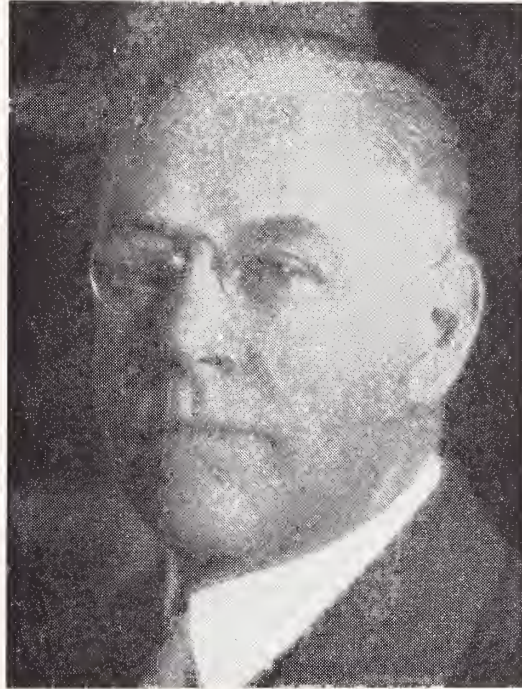
It seems that many more of you must be eligible to participate in this first Art—Hobby Exhibit, and have neglected to write. If such is the case do not hesitate to bring the results of your hobby to Poland Spring with you. A room is being reserved especially for this exhibit and there will be ample space for all entries.

(Oil Paintings, Photographs, Sculptures, Etchings, Fly Tying, Woodworking, etc.)

NECROLOGIES

Frank Elliott Leslie, M. D.

1873 - 1951



Frank Elliott Leslie, M. D., died in St. Petersburg, Florida, March 27, 1951. Former Manager of Veterans' Administration Hospital, Mendota, Wis., was born July 21, 1873, in Woburn, Mass.; the son of Freeman F. and Sarah Jane (Russell) Leslie. He was educated at New York University; Massachusetts College of Pharmacy; Bowdoin College, M. D., 1901; New York Post-Graduate Hospital; St. Elizabeth Government Hospital for Insane; and at U. S. Veterans' Post-Graduate School. On June 3, 1903, he married Nellie V. Ripley of Andover, Maine.

Dr. Leslie served as Hospital Steward at Massachusetts Soldiers' Home, for three years, and from 1901 to 1904, he was engaged in general practice of medicine. In 1905, he was appointed Superintendent of Glenellis Sanitarium for Neuropsychiatric Cases, and during the First World War he organized Neuropsychiatric Boards and examined commands at Fort Ethan Allen, Vt., Fort Myer, Va., Camp Shelby, Miss., Camp Wadsworth, S. C., and Camp Sherman, Ohio. He was commissioned in 1919 as Surgeon in U. S. Public Health Service, and he organized and became Clinical Director of Neuropsychiatric services for the Army at Fort Benjamin Harrison, Ind., Fort Sam Houston, Texas, and at Perryville, Md. He also organized and served as Medical Officer in Charge of Neuropsychiatric Services for U. S. Public Health Service at West Roxbury, Mass., 1920; U. S. Veterans' Bureau at Fort McKenzie, Wyo., 1922; U. S. Army at Augusta, Ga., 1921; Palo Alto, Calif., 1923; and

Camp Custer, Mich., 1924. In 1924, he was commissioned a Lt. Col. in the Medical Reserve, U. S. A. He was Neuropsychiatrist on Central Board of Appeals of U. S. Veterans' Bureau, N. Y. C., from 1925 to 1926, when he was appointed Assistant Medical Officer in Charge and Clinical Director of U. S. Veterans' Hospital, No. 49, Philadelphia. He served as Medical Director in Charge of U. S. Veterans' Hospital, Perry Point, Md., from 1927 to 1933, and as Manager of Veterans Administration Facility, Northampton, Mass., from 1933 until 1939, when he assumed his duties as Manager of Veterans' Administration Hospital, Mendota, Wis. He retired from Federal Service on August 1st, 1943.

He was a Diplomate of American Board of Psychiatry and Neurology, and Member of American Medical Association; American Psychiatric Association; U. S. Military Surgeons; Oxford County Medical Society; Maine Medical Society; National Committee for Mental Hygiene. He also held membership in Louis T. Battey Post, No. 4, American Legion; St. John's Lodge of A. F. and A. M. of Boston; Augusta Chapter of Royal Arch Masons; Georgia Commandery of Knights Templar; Department of Wisconsin Reserve Officers' Association; Northampton Chapter of Military Order of World War; and University Club of Winter Park, Florida.

Dr. Leslie was the author of more than 30 articles and papers, dealing chiefly with mental hygiene published in various medical and scientific journals.

Walter S. Milliken, M. D.

1870 - 1950

Walter S. Milliken, M. D., of Madison, Maine, passed away on November 20, 1950. He was born in West Baldwin, Me., Sept. 17, 1870. He attended the University of Vermont for two years, and graduated from Baltimore Medical Col-

lege in 1897 with an M. D. degree. He practiced medicine in Bartlett, N. H., for two years, and in 1900, he came to Madison where he had lived and practiced since.

Dr. Milliken was prominent in civic affairs in town, county

and state. He served as school physician and health officer for many years. He also was State Representative for four years. He was a loyal member of the Masonic Order.

He was a member and Past President of the Somerset County Medical Society, a member of the Maine Medical Association, and also of the American Medical Association.

In 1948, he was presented a fifty-year jewel from the State Medical Association. He was on the staff of the Redington Memorial Hospital, the Franklin Memorial Hospital, and the Central Maine General Hospital.

Because of ill health, he retired from active practice in 1948. Dr. Milliken served this community with unselfish devotion, loyalty and kindness, giving his services without thought of financial reward to many unfortunate people.

All through his many years of practice he thought of his patients first, and was a conscientious physician of the "old school" type. He was much loved and admired by his friends and patients. He had a fine sense of humor, enjoying a funny anecdote and delighting his listeners with his favorite stories. He is survived by his widow, Edith, whom he married in 1898.

Be it resolved that the Somerset County Medical Society has lost a loyal and valued member.

Be it further resolved that a copy of these resolutions, together with an expression of deep sympathy, be sent to Mrs. Milliken, and also that a copy be spread upon the books of the Society.

LESTER NORRIS, M. D.,
WALTER S. STINCHFIELD, M. D.

Edward F. Robinson, M. D.

1860 - 1950

Edward F. Robinson, M. D., 90, of Falmouth, died at a Portland hospital, August 25, 1950.

Dr. Robinson was born in Windham, Maine, March 17, 1860, the son of Henry and Lydia Varney Robinson.

He was graduated from Colby College in 1884, attended Bowdoin College and received his Medical Degree from Dartmouth Medical School in 1892.

Dr. Robinson was an Honorary Member of the Cumberland County Medical Society and the Maine Medical Association, having received his Fifty-Year Medal at the 1942 annual session of the Association. He was also a member of the American Medical Association.

Hedley V. Tweedie, M. D.

1866 - 1950

Hedley V. Tweedie, M. D., 84, died at his home in Rockland, Maine, December 16, 1950.

Dr. Tweedie was born in Williamstown, N. B., Canada, June 18, 1866, the son of Robert and Susan Tweedie.

He was a graduate of the University of Maryland Medical School in 1897 and did post-graduate work at Johns Hopkins Hospital. He practiced in Baltimore until 1900 when he became an assistant surgeon in the army as a 1st Lieutenant, serving at San Francisco and in Alaska until 1904. From 1904 until 1916, he was located in Baltimore. During the first

World War he was a Captain in the Medical Corps. He located in Rockland in 1919 and practiced there until the time of his death.

He had been an Honorary Member of the Knox County Medical Society and Maine Medical Association since 1947 when he was presented with the Association's Fifty-Year Medal. He was a member of the American Medical Association, and a 32nd degree Mason.

Surviving are his widow, Edith Hudson Tweedie, a daughter and two sons.

Horatio W. Frohock, M. D.

1882 - 1950

Horatio W. Frohock, M. D., 68, died in the Knox County General Hospital, Rockland, Maine, December 29, 1950.

Dr. Frohock was born in Andover, Massachusetts, August 20, 1882, the son of Sylvanus E. and Nellie H. Frohock.

Dr. Frohock, a veteran of the Medical Corps in the first World War, was graduated from the College of Physicians and Surgeons in 1907. He practiced in South Thomaston from 1907 to 1915, and in Rockland since that time.

He was a member of the Medical Staff of the Knox County General Hospital, a member of the Knox County Medical Society, Maine Medical Association and American Medical Association.

Surviving are his widow, Mrs. Sarah Merrill Frohock, two sons, his mother, four brothers and two sisters.

Walter R. Gumprecht, M. D.
1902 - 1950

Walter R. Gumprecht, M. D., 48, of Bangor, died December 16, 1950.

Dr. Gumprecht, a widely known specialist in chest diseases, was born in Meriden, Connecticut, March 9, 1902, the son of Richard M. and Martha H. Gumprecht.

He had practiced in Bangor since 1929, was a former Bangor city physician, and medical director of the Bangor Sanatorium. He held a major's commission in the Maine National Guard medical detachment during World War Two.

Dr. Gumprecht was a member of the Penobscot County Medical Society, Maine Medical Association and American Medical Association. He was a past president of the Bangor Medical Club and a former director of the Maine Public Health Association.

He is survived by his widow, two daughters, two sons and his parents.

Raymond W. Clarke, M. D.
1888 - 1951

Raymond W. Clarke, M. D., 62, died at Ellsworth, Maine, February 11, 1951.

Born at Franklin, Maine, he attended Maine Central Institute at Pittsfield, and was graduated from Bowdoin Medical School in 1916. He interned at the Eastern Maine General Hospital, Bangor, and began practice at Deer Isle.

A World War One veteran, Dr. Clarke also practiced at Searsport before locating in Ellsworth in 1924.

He was a member of the Hancock County Medical Society, Maine Medical Association and American Medical Association.

He is survived by his widow, Etta.

William W. Smith, M. D.
1867 - 1950

William W. Smith, M. D., 84, died at Ogunquit, Maine, May 30, 1950.

Dr. Smith was born in North Windham, Maine, January 15, 1867, son of Andrew F. and Eunice L. Skillins Smith.

He was graduated from Alfred High School, Westbrook Seminary, and received his Medical Degree from Dartmouth Medical College in 1894. He had practiced in Ogunquit since 1898.

Dr. Smith was presented with the Maine Medical Association's Fifty-Year Medal in June, 1944, and with a Five-Year Bar in 1949. He was a member of the York County Medical Society, Maine Medical Association and American Medical Association.

He is survived by his widow, Augusta S. Mann Smith.

In Memoriam

Clarke, Raymond W.,	Ellsworth
Dore, Guy E.,	Guilford
Frohock, Horatio W.,	Rockland
Gumprecht, Walter R.,	Bangor
Jackson, Calvin F.,	War, West Virginia
Jessner, Kurt J.,	Fairfield
Jones, Richard P.,	Belfast
Leslie, Frank E.,	Portland
Milliken, Walter S.,	Madison
Ridlon, Magnus G.,	Kezar Falls
Robinson, Edward F.,	Falmouth
Smith, William W.,	Ogunquit
Tweedie, Hedley V.,	Rockland

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, Harry D. McNeil, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Kennebec

Howard F. Hill, M. D., of Waterville, while on a recent tour of Europe, was elected a member of the French Ophthalmological Society.

Waldo

Foster C. Small, M. D., of Belfast, President of the Maine Medical Association, has been appointed to serve on the Program and Central Committees of the New England Post-Graduate Assembly.

Knox

C. Harold Jameson, M. D., of Rockland, President-elect of the Maine Medical Association, wishes to thank the members of the Association for the flowers sent him while he was in the hospital.

Dr. Jameson resumed practice April 30.

NEWS AND NOTES

Maine Radiological Society

The Maine Radiological Society held a meeting on Wednesday, May 2nd, at Togus.

The business session was devoted to discussion of radiology in Maine. Further progress on the development of a constitution was reported and this will be finally completed at the annual meeting in June.

Forrest B. Ames, M. D., of Bangor, was nominated for Councilor for the American College of Radiology, this nomination to be acted upon by the Board of Chancellors of the College.

Following a dinner there was a round table discussion relative to the role of Radiologists in Civilian Defense plans led by Clark F. Miller, M. D., of Lewiston.

It was voted to hold the annual meeting Monday noon, June 18th, at Poland Spring.

FORREST B. AMES, M. D.,
President,
The Maine Radiological Society.

Plastic Surgery Awards — 1951

Plastic Surgery Awards — 1951: The Foundation of the American Society of Plastic and Reconstructive Surgery offers Junior and Senior Awards for original contributions in Plastic Surgery.

Junior Award: 2 Scholarships in Plastic Surgery of 6 and 3 months, respectively.

The contest is open to plastic surgeons in the specialty not longer than 5 years.

Senior Award: For the best essay on "Mass Treatment of Burns in Atomic Warfare."

The winning essays will appear on the program of the forthcoming annual meeting of the American Society of Plastic and Reconstructive Surgery to be held at Colorado Springs, Colorado, October 31-November 2, 1951.

All entries must be received by the Chairman not later than August 15, 1951.

For full particulars write to:

The Award Committee,
c/o Jacques W. Maliniac, M. D.,
11 East 68th Street,
New York 21, N. Y.

Continued on page 198

**Not only enough bulk
...but plenty of water**



...with METAMUCIL®



To assure the patient of the necessary quantity of liquid and natural mucilloid expedient to the promotion of peristaltic movement, Metamucil is to be taken with a full glass of cool liquid and may be followed by another glass of liquid if indicated.

Metamucil, mixed with water, produces:

- • • a bland mass which is intimately miscible with the intestinal contents and is extended evenly throughout the digestive tract
- • • gentle stimulation of the bowel wall, initiating normal reflex peristalsis
- • • medium stools—not hard, not soft
- • • no irritation, straining, impaction and
- • • no interference with digestion or absorption of oil-soluble vitamins.

METAMUCIL® is the highly refined mucilloid of *Plantago ovata* (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. G. D. Searle & Co., Chicago 80, Illinois.

SEARLE

R E S E A R C H I N T H E S E R V I C E O F M E D I C I N E

COUNCILOR REPORTS

First District

To the Officers and Members of the Maine Medical Association:

During the current year 6 regular meetings have been held by the Cumberland County Medical Society and 6 meetings by the York County Medical Society. One meeting in each county was devoted to the discussion of medical aspects of civil defense. The May meeting of the York County Medical Society was an innovation in the respect that it was held in Boston where members of the Society attended a clinic provided by the staff of the Beth Israel Hospital.

A special meeting of the Cumberland County Medical Society was held on March 29 to consider the Blue Shield Insurance Plan. At this meeting the Cumberland County Medical Society voted to instruct their delegates to oppose the Blue Shield Plan and requested members of the society who had agreed to participate in this Plan to withdraw their participation agreements.

Respectfully submitted,

EUGENE H. DRAKE, M. D.,
Councilor, First District.

Second District

To the Officers and Members of the Maine Medical Association:

I hereby wish to submit my report as Councilor of Second District for the year 1950-51:

County meetings at Lewiston, Bethel and Farmington were attended, as well as the Council meetings every 2 months, the outstanding feature of the latter being the meeting at Pittsfield.

My experience as Councilor for 3 years has impressed me with the earnest sincerity of the officers of the Maine Medical Association, their every effort always directed toward efficiency and economy in the discharge of their duties, with the well-being of patients the prime consideration.

Respectfully submitted,

J. A. MACDOUGALL, M. D.,
Councilor, Second District.

Third District

To the Officers and Members of the Maine Medical Association:

I have visited the Knox County Association on two occasions. Attendance has averaged 50% and there seems to be an active interest in programs. There apparently is confusion in the minds of some as to the operation of the Blue Shield Plan. I shall refer to this in conjunction with my own Society, Lincoln-Sagadahoc. My own personal feelings are that the plan should be tried for at least a year and objectionable features eliminated as far as possible. It seems difficult to explain to the members why the "pro rating" feature need be in, which is because we are not dealing with a capital company which has reserves, and that the actuarial experience is too problematical to guarantee full payment. One objection that seems to be universal is to the publishing of a list of participating physicians. There is a feeling that it creates a favored group and is coercive on those who for various reasons might not wish to sign up.

The attendance at the Lincoln-Sagadahoc meetings leaves something to be desired. Some of the poor attendance during

the winter is attributable to illness of the members. There have been no problems of internal friction in either of the two Societies.

I have been able to attend all meetings of the council.

Respectfully submitted,

R. W. BELKNAP, M. D.,
Councilor, Third District.

Fifth District

To the Officers and Members of the Maine Medical Association:

My report for this year is of having attended practically all of the meetings of the Hancock County Medical Society, and the organization is in excellent condition, holding on an average 10 meetings a year with interesting, active speakers. We also note an increase in membership so that now the Society has two delegates as against one delegate previously. I can report the condition of the Society is excellent.

The Washington County Society, even though I have not been able to visit them on the meetings of which I have been notified, indicates by these notifications that they are having interesting, active programs and have an active membership. I cannot report other than this Society has definitely improved in its activities during the past year.

Respectfully submitted,

RAYMOND E. WEYMOUTH, M. D.,
Councilor, Fifth District.

Sixth District

To the Officers and Members of the Maine Medical Association:

It is a pleasure to again submit my report on the activities of the three County Medical Associations which comprise the Sixth Councilor District.

The Aroostook County Medical Association has held four meetings this year. When one considers the fact that Aroostook County covers an area larger than the State of Massachusetts, the fact that they have an average attendance at their meetings of nearly 50% speaks clearly for their good fellowship and good meetings.

The Penobscot County Association is by far the largest in this District. They have had nine meetings during the year and conducted the Fall Clinical Session. Their meetings are well attended both by members of their Association and members of smaller County Associations to whom they kindly send notices of their meetings. They have endeavored to have a list of physicians in Bangor who will take night calls. This is a city problem and they are endeavoring to correct it.

The Piscataquis County Association has held only four meetings, plus two hospital staff meetings, to which all M. D.'s in the County were invited. The meetings in Piscataquis County are attended by all who can possibly get away to attend. Excellent attendance. The untimely death of Guy E. Dore, M. D., on March 12th, grieved all members of this Association. Guy was one of our most active members and a friend to all. He will be greatly missed at our meetings.

Respectfully submitted,

N. H. NICKERSON, M. D.,
Councilor, Sixth District.

COMMITTEE REPORTS

STANDING COMMITTEES

Committee on Public Relations

To the Officers and Members of the Maine Medical Association:

The Committee on Public Relations respectfully presents the following report for the year 1950-51.

Two meetings of the Committee were held during the present year; one in August and another in January during the session of the State Legislature.

The Committee has largely functioned in an advisory capacity, as a policy-making body, to our Executive Secretary, Mr. Payson, to whom any credit for improved Public Relations must be given.

Our policy of coöperation with the Press and Radio has continued to bring forth satisfactory results. We have endeavored to provide releases on all programs to the Press and Radio whenever possible. Much more could be accomplished in this respect if some procedure could be established whereby each program participant could be prevailed upon to provide an abstract of his presentation in advance. The Public is interested in our proceedings and much good-will would be forth-coming from a more complete Press release program. We would urge that our Program Committee bear this in mind and request such abstracts for the use of our Committee.

It is also important that these releases go through the hands of some qualified person for editing. At times we have had inaccurate and undesirable publicity due to misunderstanding of professional terminology, or to unfortunate and misleading headlines. The Press desires to report our activities correctly but cannot do so without our coöperation.

The Committee has continued to be concerned with the complaints of inability to obtain the services of physicians when needed, especially at night, or on Sundays or holidays. This complaint is not State-wide but is largely localized in certain areas. It is our feeling that this complaint, which all too often is a valid one, can best be corrected by local hospitals arranging for necessary coverage. Where this is done the results seem to have been very satisfactory.

After all the best Public Relations for the Medical Profession are good personal relations between the doctor and his patients. This pertains both to availability of services and recompense for the same. The best State Program of Public Relations can easily be ruined by the unthinking or selfish acts on the part of the individual practitioner.

Your committee was not directly interested in any Legislative measures this Session but did endorse the bills calling for increased payments to hospitals for State Aid (indigent) cases and for hospitals having first lien on insurance payments in accident cases.

Respectfully submitted,

WARREN E. KERSHNER, M. D.,
THEODORE C. BRAMHALL, M. D.,
M. TIECHE SHELTON, M. D.,
I. I. GOODOF, M. D.,
FORREST B. AMES, M. D.,
FREDERICK T. HILL, M. D.,
Chairman.

Rural Health Committee

To the Officers and Members of the Maine Medical Association:

The Rural Health Committee held two meetings during the current Association year. One meeting was devoted to local public health units, the other to clinics at hospitals in more rural areas.

On October 15th in Bangor this committee had further

discussion of the movement to provide basic minimum local public health services which has long been a prime topic for consideration by this committee. It is readily recognized that because local public health units are almost always set up and financed by each town separately in this State, there are very few places where even a basic minimum local public health service is provided.

The Federal Congress has long had under consideration federal subsidies to states which in turn could then subsidize proper unions of towns and even counties in health districts. Such a bill is at present before the Congress, approved by A. M. A. with minor changes.

The committee has long approved the general principles involved but felt that as approach was made to actual operation that this problem was not purely rural and that there should be a committee especially for this subject. It so recommended and the committee has been appointed.

On December 10th the committee met at Augusta with President Small to discuss the revival of clinics at the hospitals in smaller cities and towns. Dr. Small had evinced a special interest in this project and recounted the benefits derived in earlier days when such clinics were held.

This committee recommended that the County Societies in rural areas give consideration to and take the leadership in undertaking such clinics as in their judgment are feasible and desirable.

Respectfully submitted,

NORMAN H. NICKERSON, M. D.,
Chairman.

Legislative Committee

To the Officers and Members of the Maine Medical Association:

A number of bills have come before the Legislature which in some ways affected our Association. I will endeavor to list the more important of these by number as well as to give a short outline of their purpose.

First, L. D. 607 was introduced at the request of the Maine Medical Association. This bill gives authority to the Trustees of the University of Maine to establish and operate a Class A Medical School when and if funds are available for its construction and operation. This bill was passed and signed by the Governor.

L. D. 1158 was a bill to permit chiropractors to furnish medical and surgical services under the Workmen's Compensation Law. The insurance companies were largely responsible for the defeat of this bill.

L. D. 474 was a bill to establish a course of training for practical nursing. It received an unfavorable report from the Committee and as it called for an appropriation for the biennium of \$50,000.00 it was killed.

L. D. 514 was a bill introduced by the Board of Registration of Medicine to clarify the language defining persons qualified to take the examinations. It also stiffened the law regarding camp physicians and increased the powers of the Board to make rules and regulations. This bill was passed.

L. D. 522 was a Resolve to appropriate approximately one-half million dollars to build a surgical unit at the Fairfield Sanatorium. This bill received good support in the Committee hearing from several doctors, including our President, and its desirability was undoubtedly established. This bill was passed, subject however, to the availability of surplus funds.

The general appropriation bill carried an item for aid to public and private hospitals. This really means for State Aid to the medically indigent in hospitals. The previous

appropriation has been about \$576,000.00 which allowed about \$4.50 per hospital day which is less than one-half of the daily hospital cost. The Governor had strongly recommended an increase to \$1,000,000.00 and submitted that figure in his appropriation bill. The Committee cut that amount to \$750,000.00. Then the House, by an amendment, put it back to \$1,000,000.00 but later got cold feet and referred the bill to the House Ways and Means Committee and that Committee recommended, among other appropriation cuts, a reduction in hospital aid to \$800,000.00. This cut was accepted by the Legislature and that is the situation at present.

L. D. 56 is a bill introduced by the Associated Hospital Service to require the Insurance Commissioner to supervise and license its work in hospital and surgical service plans. This bill was passed.

L. D. 949 is a bill concerning vital statistics. The existing law provides that if a person is found dead unattended the people in the home can call in the town clerk who can issue a death certificate. The proposed law requires that a doctor be called in to make inquiry and examination and issue the certificate. This law also includes, in cases of sudden death for the calling in of a physician. This bill was passed.

L. D.'s 909 and 910 concerning compulsory and free vaccinations for children were both defeated.

L. D. 18 was a bill to give hospitals a lien on the proceeds of insurance. The intent of the bill was not clearly stated as to what insurance this referred to. A second draft was made but this also was not satisfactory and the bill was again recommended to the Committee. No report has come out as yet.

L. D. 1056 is the new commitment law proposed by Colonel Greenlaw, Commissioner of Institutional Services, Dr. Sleeper, and Dr. Pooler. This bill was not drafted in such a way as to be acceptable by the Judiciary Committee. A redraft has been made and this new draft has been accepted and passed.

This completes the list of bills which affect our Medical Association.

Respectfully submitted,

P. L. B. EBBETT, M. D.,
Chairman.

Committee on Medical Education and Hospitals

To the Officers and Members of the Maine Medical Association:

The Committee on Medical Education and Hospitals of the Maine Medical Association submits its annual report for 1951.

During the past year this committee has been interested in two projects, namely, the work of the Bingham Associates in Maine, and secondly, the investigation of ways for making it easier for Maine boys to obtain a medical education.

On June 18, 1950, the committee presented to the Council a summary of the work of the Bingham Associates in Maine. The complete report is in the minutes of the Council of that date. Briefly it was learned that the Bingham Associates are spending about \$50,000.00 annually in Maine. A partial list of the benefits to Maine hospitals includes the following:

- Teaching residents at Lewiston and Bangor.
- An itinerant medical records librarian.
- Participation of residents from the Pratt Clinic at staff conferences in many hospitals.
- Scholarship money for training technicians.
- Partial tuition for nurses taking post-graduate work.
- Consultation service for bookkeeping and purchasing departments.
- Training of junior laboratory technicians.

All day teaching sessions at some hospitals.

Surveys of equipment and technique in X-ray departments.

Dr. Samuel Proger, President of the Bingham Associates, suggested that this committee act as a channel through which hospitals in Maine might seek help with their problems. This suggestion having been approved by the Council, letters were sent in the spring of 1951 to thirty-four community hospitals in the state. These letters asked for comments on the service previously rendered by the Bingham Associates and for suggestions as to new ways in which the Bingham Associates might contribute to solving hospital problems. Twenty-five replies were received. Among them were several letters expressing great appreciation for the cooperation and help which the Bingham Associates had given. There were also a number of proposals for further ways in which the program might be extended. These have been transmitted to the Bingham Associates and their cooperation is assured.

Because of the interest in the Bingham Fund in Maine, Tufts Medical School has a policy of giving Maine boys a preference over other applicants, all other considerations being equal. We are assured that they are willing to see that at least twenty Maine boys have the opportunity for medical education each year. They will agree to take twenty or more if the need can be shown, that is, twenty minus those who have been accepted at other medical schools.

In the hope that the trustees of the Garcelon-Merritt Fund might be willing to cooperate with us, a study has been made as to the origin of the boys who have received scholarships from this Fund and as to what eventually became of them. A summary of this study in the form of a table is attached for publication in THE JOURNAL. We have requested permission to present this material to Dr. Kenneth Sills, President of Bowdoin College, in the hope that some type of liaison between the Garcelon-Merritt Fund, Tufts Medical School, and the Maine boys seeking a medical education may be worked out.

Respectfully submitted,

FREDERICK R. CARTER,
VIRGINIA C. HAMILTON,
GILMORE W. SOULE,
CLYDE I. SWETT,
RICHARD S. HAWKES,
Chairman.

Total number of awards, 1922 to 1943, inclusive,	835
Total number of recipients, 1922 to 1943, inclusive,	299
Maine boys who returned to Maine,	79
Maine boys who went to another state or country,	71
Maine boys into military or public service,	2
Maine boys still in training,	6
Maine boys untraced,	5
Boys from outside Maine who came to Maine,	18
Boys from outside Maine who went to another state or country,	66
Boys from outside Maine into military or public service,	3
Boys from outside Maine still in training,	7
Boys from outside Maine untraced,	3
Boys whose origin is unknown who went to another state,	21
Boys whose origin is unknown who went into military or public service,	3
Boys known to have left medicine,	7
Untraced,	8

This table may be summarized as follows:

Total number not traced,	16
Total who are known to have left medicine,	7
Total Maine boys now in medicine given aid,	163
Total who are settled in Maine,	97
Total who are settled elsewhere,	158
Total still in training,	13
Total into military or public service,	8

SPECIAL COMMITTEES

Tuberculosis Committee

The Tuberculosis Committee held one meeting at the Central Maine Sanatorium, Fairfield, on April 6, 1951.

Mr. Wells of the Maine Tuberculosis Association appeared and spoke on the desirability of establishing permanent tuberculosis clinics at vantage points throughout the State. Also of establishing a policy of X-raying chest of all General Hospital admissions. He expressed the desire to follow the dictates of the medical profession in the matter and asked if this Committee would draw up a resolution for consideration at the Maine Medical Association meeting in June.

Dr. William Grow then outlined the tuberculosis course he attended in Boston on the function of the lungs, especially in its relationship to surgical procedures.

Dr. Wilbur B. Mantor of Bangor, who attended the Tuberculosis Conference in New York, gave his impressions on the methods used in handling tuberculosis cases in the New York area.

Dr. Frederic B. Champlin of Waterville, who had just returned from a Conference in Philadelphia, was to give a report but was unable to attend.

Following the speakers, several unusual chest X-rays were presented and discussed. All present felt that this was an excellent and informative conference and well worth while for anyone interested in the tuberculosis problem.

LOREN F. CARTER, M. D.,
Chairman.

Committee on Conservation of Vision

To the Officers and Members of the Maine Medical Association:

The Committee on Conservation of Vision has carried out the usual liaison with Aid to the Blind and has arranged for a full day program on Monday, June 18, at the Poland Spring House, during the annual session of the Maine Medical Association.

Also, a committee has been appointed to form a Ophthalmological Section for the Maine Medical Association.

Respectfully submitted,
HOWARD F. HILL, M. D.,
Chairman.

Amy W. Pinkham Trust Fund Committee

The Maine Tuberculosis Association, following a conference with the Amy W. Pinkham Committee of the Maine Medical Association, and at the request of the committee, made a comprehensive study of the availability of pasteurized milk throughout the State and the usage of pasteurized milk in school hot lunch programs.

Among the findings of this study was a serious lack of adequate equipment facilities in many of the schools serving hot lunches, a lack of equipment needs which handicapped proper or effective development of these programs in many schools and which forced them to operate below standard requirements.

As a result of these findings, and to help improve hygienic and sanitary conditions, as well as promote the usage of pasteurized milk in school lunch programs, the Maine Tuberculosis Association recommended to the Pinkham Committee of the Maine Medical Association (Bangor Clinical Session) that Pinkham funds be utilized for grants for necessary capital equipment items to schools setting up new programs but requiring help, or schools where the program appeared permanent and was well managed but were unable because of lack of funds to realize standard equipment needs. It was further suggested that when pasteurized milk was available,

to receive a grant the school agree to the exclusive use of pasteurized milk in its program.

It was felt that assisting with the establishment of hot lunch programs in schools serving rural populations was in keeping with the terms of the trust which specified that the funds be used for "tuberculosis or undernourished children, preferably from rural areas." The committee, therefore, gave tentative approval pending the development of a plan of administration. This plan was subsequently approved by the Executive Board of the Maine Tuberculosis Association, co-administrators of the trust fund.

A plan was prepared by the staff of the Maine Tuberculosis Association which was submitted to each group concerned and approved by them. It was necessary to seek the help and cooperation of the Director of the Department of Education's School Lunch Program, Miss Helen Madsen.

Through Miss Madsen, an individual questionnaire was sent to each school superintendent to obtain information on the physical needs of all school lunch programs of the state. Following a receipt of the questionnaires, they went through two screenings. Those then considered most in need—not all questionnaires have been returned—were given a priority of attention, and the local tuberculosis association worker serving the areas in which these schools were located, was requested to make a final check and recommendation.

Where final screening indicated a real need, the school superintendent was then sent a letter indicating the Pinkham Trust as a possible source of assistance, naming the particular equipment need indicated, and requested him to provide information relative to costs. In each instance, the superintendent has been requested to keep the matter confidential.

In awarding grants, an agreement of acceptance was devised, committing the school administrator to utilizing the funds given for the express purpose which was agreed upon and to return any funds which might remain unexpended after the purchase of the indicated equipment. It also contains an agreement to use pasteurized milk.

For the present a limit of \$250.00 has been arbitrarily imposed by the tuberculosis association in an effort to give some responsibility to the community and to make possible a wider utilization of funds throughout the state.

The items most frequently indicated as needed and being considered are refrigeration, deep well sinks, hot water systems, and cooking ranges. The schools indicating such needs as potato peelers, utensils, mix-masters, shelving, flooring, furniture, et cetera, have not been considered in the establishment of priority.

To date, one award has been made to the Ashland Community High School (this school had burned and the equipment destroyed) ; \$250.00 toward the purchase of an 11-cubic foot ice box.

Correspondence is under way with the superintendents of schools in Ellsworth Falls, Eustis and Howland.

Final investigations by local tuberculosis association workers are under way in schools serving areas in and around Kezar Falls, Sebec, Hiram, Morrill, Oakland, Harmony and Whitefield; these having been granted first priority. When these are completed, investigations of the next in need will be started.

In each instance, school administrators know nothing of this program until approached, nor do they know of the preliminary screening and final investigations, it all being kept confidential.

Our committee discussed the above program with Mr. Wells of the Maine Tuberculosis Society and we agreed it would be a good way to make use of the proceeds of the Amy Pinkham Fund. Mr. Wells has kept our committee posted as to the progress they are making with the project and I have tried to give you as accurate an account as possible of what has been done to date.

Respectfully submitted,
P. L. B. EBBETT, M. D.,
Chairman.

Veterans' Affairs Committee

To the Officers and Members of the Maine Medical Association:

Within the near future all duly licensed physicians will receive a revised schedule of the form of agreement with state medical societies (including administrative cost) which will be self-explanatory.

In this new contract and fee schedule for medical services there will be no change which would lessen the fees already being paid to the contracting physicians nor any changes which would be of disadvantage to them. This new contract has had the careful consideration of this department and of the Veterans' Administration in Washington.

Let us remind you that the Associated Hospital Service of Maine (Veterans' Care Department) is acting merely as a central fiscal agency which relieves doctors, the Maine Medical Association, and the Veterans' Administration of the necessary bookkeeping in connection with the care of veterans by their own family physicians.

Note that this new agreement may be renewed indefinitely for periods of one (1) year, upon notice in writing to the contractor (the Veterans' Care Department, Associated Hospital Service of Maine) at least sixty (60) days prior to the expiration of such periods as one (1) year, and a written statement from the contractor within thirty (30) days after such notification agreeing to the renewal.

We urge all doctors to sign such an agreement, particularly for the care of the veterans and those of which are rapidly becoming veterans during this Korean campaign.

Respectfully submitted,

HAROLD E. PRESSEY, Bangor,
Chairman,
ELTON R. BLAISDELL, Portland,
CURRIER C. WEYMOUTH, Farmington,
FRANCIS A. WINCHENBACH, Bath,
EDWARD H. RISLEY, Waterville,
PHILIP O. GREGORY, Boothbay Harbor.

Health Insurance Committee

To the Officers and Members of the Maine Medical Association:

During the past year a number of new policies have been issued by insurance companies operating under the Maine Plan. Another insurance company, The American Casualty Company of Reading, Pa., has been accepted as meeting the standards of the Plan. In September, the Associated Hospital Service of Maine informed the Health Insurance Committee that they wished to prepare a Blue Shield Plan to participate in our insurance program. The Committee studied the policies of the Blue Shield Plan with the assistance of the Executive Secretary. The policies were discussed at a joint meeting with our advisory committee. On December 14, 1950, the Blue Shield Plan was formally approved by the Health Insurance Committee. Like other Blue Shield Plans, this policy calls for prorating of fees of practicing physicians, if this should become necessary, and this provision required solicitation of members of the Maine Medical Association and their acceptance. The Associated Hospital Service of Maine has agreed, in view of the new Blue Shield Plan, to 40% representation of physicians on their Board of Directors. The addition of the Blue Shield Plan to the participating insurance companies in our Plan is important as it promises to be the means of reaching many small groups of persons and people who are unemployed, including the rural population of Maine, many of whom need health insurance protection.

The sale of Blue Shield Insurance by the Associated Hospital Service in Maine has already begun in some of the counties of the state.

Respectfully submitted,

EUGENE H. DRAKE, M. D.,
Chairman.

Committee on Blood Transfusions

To the Officers and Members of the Maine Medical Association:

During the year 1950-1951, there has been considerable activity on the part of the Transfusion Committee, particularly in relation to the Civil Defense Program. The recommendations of the Committee regarding Preparation for Disaster are contained in the report which was presented to the Council of the Maine Medical Association on October 15, 1950. In brief these recommendations, as amended, are as follows:

1. That each existing blood bank increase its potential donor list, its stock-pile of transfusion apparatus (bleeding and recipient sets), its stock-pile of A and B substances and its personnel so that the existing blood banks could furnish 1000 units of whole blood within 72 to 96 hours after a major disaster.

2. That each existing blood bank increase its weekly intake of blood so as to gradually build a stock-pile of liquid or frozen plasma so that a total of 5000 units of plasma would be immediately available in this state in the event of a major disaster. It is recognized that this quantity of blood and plasma is insufficient to cover the prolonged needs which would follow an atomic explosion in a major city.

3. That each existing bank select an alternate site preferably outside of a major city where, in an emergency, a trained team might immediately start processing blood. Wherever possible refrigerating equipment not requiring electric power should be ear-marked for use by such a unit.

4. That each existing bank secure and train as many as possible volunteer recruits for blood-bank technicians and phlebotomists, and that a file be kept with the name, address and telephone number of each volunteer assistant.

5. That each hospital which now procures blood should organize phlebotomy teams (eight if possible) so that at a moment's notice there will be facilities and personnel for bleeding the maximum number of donors on a 24-hour basis.

6. That each hospital using expendable transfusion equipment should stock-pile the used equipment *from now on*. EXPENDABLE EQUIPMENT SHOULD NOT BE DISCARDED.

7. That each existing blood bank in the State of Maine submit to the Chairman of the Transfusion Committee a copy of the Disaster Plan which has been adopted by that Bank for coöperating with the Office of Civilian Defense.

8. That each hospital now using dried plasma should double the quantity which is normally kept on hand for reserve.

9. That a duplicate master-file of all potential donors be prepared and ready to be turned over to the Bureau of Health and Welfare when requested.

10. That the Maine State Legislature be requested to appropriate funds to purchase a stock-pile of 500 units of dried plasma to be stored strategically throughout the State.

11. That the existing hospitals in the state be requested to collect blood to be sent to central laboratories for typing. It is recommended that this procedure be delayed until facilities are available to handle the additional load.

12. That the State Diagnostic Laboratory be requested to supply the necessary typing serums to accomplish the typing of donors whose blood is donated for the plasma stock-pile. Such typing serum should be distributed on the basis of the number of units of plasma which have actually been processed and are available for use in case of disaster.

13. That the Diagnostic Laboratory of the Department of Health and Welfare will continue to do blood typing for certain strategic localities in the state where adequate facilities for typing do not exist.

It is understood that the limit which will have to be imposed by the laboratory will be about sixty samples per day. It will be the responsibility of the Department of Health and Welfare to undertake typing in those areas which are strategically located from the standpoint of civil defense. It

is further understood that the processing at the laboratory will consist of tests for typing, Rh factor, and for serology. This work will be continued regardless of whether or not additional funds are made available to the department for civil defense activities. It was unanimously decided that because of the limited supply of typing serum and the limited supply of adequately trained technicians that so-called state-wide typing should, for the present, be discouraged. It was further suggested that for the present, the typing of civilian personnel, other than that associated with the treatment of patients, be limited to potential donors who are willing to contribute a pint of blood toward the accumulation of a plasma pool. In this way the program may be accelerated in three ways.

- (a) The potential donor will have had the experience of a phlebotomy and will be a better donor when called for an emergency.
 - (b) Blood typings can be performed on a steadily increasing number of persons without excessive pressure and haste.
 - (c) Blood for plasma storage can be gradually accumulated.
14. That the Office of Civilian Defense be requested to purchase and strategically distribute one thousand donor sets, one thousand recipient sets and one thousand blood bottles for emergency use. It is most important that equipment for bleeding and transfusing be readily available. It is possible that plastic bags may replace glass bottles. Some type of apparatus should be stock-piled immediately.

15. That each hospital now engaged in bleeding donors double their normal supply of blood bottles, donor sets and recipient sets in order to augment the stock-pile discussed in recommendation 14. This has presumably already been accomplished.

The Department of Health and Welfare has presented to the State of Maine Legislature a request for appropriations to cover the following activities:

- (a) Funds to supply to those hospitals in the State of Maine doing typing for civil defense the so-called typing serums. The amount of serum to be supplied will be sufficient to type donors who, in turn, will donate a sufficient quantity of blood to permit the hospitals to manufacture 5,000 units of liquid plasma to be used in connection with civil defense activities. It is understood that the hospitals will build up this supply of liquid plasma over a period of time depending upon the rapidity with which donors appear for typing.
- (b) Funds to cover the cost of storage bottles in which to store plasma.
- (c) Funds to cover the cost of 500 units of commercially prepared dried plasma as suggested in Item 10.

The request from the legislature now stands at:

1. 100 x 5 cc. vials Anti A Serum	\$ 500.00
2. 100 x 5 cc. vials Anti B Serum	500.00
3. 250 x 2 cc. vials Anti Rho Serum	1,875.00
4. 5000 Baxter H-20 plasma unit bottles	4,000.00
5. 500 units Commercial dried plasma	8,500.00
	<hr/>
	\$15,375.00

On Thursday, March 1, 1951, there was a meeting held at the Headquarters of the Penobscot County Chapter of the American Red Cross in Bangor, Maine, to discuss the possibility of establishing a Red Cross Blood Center in Maine. The representative of the American Red Cross desires to establish a Blood Procurement Center in Bangor and to put in operation a Blood-mobile Unit to collect blood over the entire state and to supply the various hospitals throughout the state with whole blood for transfusion purposes. Before embarking on this program the American Red Cross requests the approval of the Maine Medical Association.

The A. R. C. has recommended the appointment of a Medical Advisory Board to act in an advisory capacity in the

carrying out of the Blood Procurement Program in this state. This Medical Advisory Board would approve hospitals to be included in this program in relation to the adequate laboratory and professional facilities for typing, cross-matching and administering whole blood. This Board would also be expected to make recommendations regarding various standards of operation of the Blood Procurement Program and of the administration of blood.

This proposal of the American Red Cross was presented by the Chairman of the Transfusion Committee at a joint meeting of the Transfusion Committee, the Maine Pathological Society, representatives of the Maine Medical Association (Drs. Small and Belknap), representatives of the Maine Hospital Association, representatives of the Maine Civil Defense and Public Safety Agency and representatives of the State Department of Health and Welfare. The subject was discussed by representatives of each of these organizations or agencies.

Before the National Blood Bank Committee proceeds on this program it desires the endorsement of the Maine Medical Society, the County Medical Societies, the local health officers, the hospital groups and the various Red Cross Chapters of the state.

The Committee on Transfusions of the Maine Medical Association was requested to consider the proposal of the American Red Cross and to make appropriate recommendations to the House of Delegates of the Maine Medical Association.

This Committee makes the following recommendations:

Whereas, the American Red Cross has proposed to establish within this state, a Blood Procurement Center to collect whole blood and plasma for use in Maine Hospitals, to collect blood for National Defense and for the Armed Forces in Korea, and to collect blood to be processed into plasma for Civil Defense stock-piles, and

Whereas, the American Red Cross has given assurance that they can adequately satisfy the whole blood needs of the hospitals in the State of Maine, and

Whereas, the American Red Cross has been selected by the Federal Government to provide whole blood, plasma, and plasma derivatives for the National Defense and Civil Defense programs of our Country, and

Whereas, this committee feels that more communities in this state may be more adequately supplied with whole blood and its derivatives by the adoption of such a program

(1) Therefore, the Committee on Blood Transfusions recommends that the House of Delegates favorably consider the establishment of a Red Cross Blood Procurement Center in this State.

(2) The Committee further recommends that if this blood center is approved that the Maine Medical Association appoint a Medical Advisory Board to make recommendations to the American Red Cross concerning the medical aspects of this project.

(3) The Committee further recommends that the standards proposed in the 1949 report of this committee be the minimum standards used in the selection of donors and the selection of blood to be used for transfusion purposes.

(4) It is further recommended that the plans submitted by this committee and approved by the council of the Maine Medical Association in October, 1950, in relation to Civil Defense Preparation be continued except for the mass blood typing program. It seems wise at this time to restrict any large scale typing program because of the limited supply of properly trained personnel and the limited supply of satisfactory typing serums.

Respectfully submitted,
RICHARD C. WADSWORTH, Bangor,
Chairman,
JOSEPH E. PORTER, Portland,
GILBERT CLAPPERTON, Lewiston,
JOHN F. REYNOLDS, Waterville,
Committee on Blood Transfusions.

Diabetes Committee

To the Officers and Members of the Maine Medical Association:

During the past three years, the American Diabetes Association has sponsored a National Diabetes Detection Week under the auspices of the State and County Medical Societies.

Prior to and during the National Diabetes Detection Week, November 12-18, the Maine Diabetes Committee was active in stimulating daily local newspaper publicity and radio talks. The coöperation of the secretaries and members of the local medical societies was excellent. The hospitals gave freely of their time in examining urines and sending reports to the family physicians. Nurses working in dispensaries of industrial plants throughout the state were especially helpful. The local newspapers and radio stations gave time and space without charge.

The only lack of response was with the public itself. It was the impression that the people in some localities were suspicious and failed to bring their specimens when they were told that the service was free.

The Ames Company supplied without charge Clinistest Tablets for urine tests. There was no money available for blood sugar determinations. Throughout the state, 2948 specimens were examined—837 by private physicians, 382 in hospitals and 1729 in industrial plants. There were 49 positive tests, 14 of which were in known diabetics.

With all of the publicity and excellent professional coöperation the number of people bringing in specimens was definitely less than anticipated by the committee. A salaried lay worker operating in the state for one month of each year would be extremely helpful but so far the Diabetes Association has no money available for this purpose.

Respectfully submitted,

E. R. BLAISDELL, M. D.,
Chairman.

Arthritis Committee

To the Officers and Members of the Maine Medical Association:

There has been no official meeting of the committee during the past year. On February 19, 1951, at the Maine General Hospital we had a combined clinical session and progress report.

The morning session included the presentation of six arthritic clinic cases, two of whom had been treated on the Medical service with ACTH. In the afternoon we had a report of progress of the clinics at the Eastern Maine and Maine General Hospitals. Both clinics are well established and have regular monthly sessions. In the near future another Arthritic Clinic is to be started at the Thayer Hospital in Waterville under the supervision of Dr. George J. Robertson.

The principal speaker of the day was Dr. Wallace Zeller—Assistant in Medicine of the Harvard Medical School, Physician at the Massachusetts General Hospital and Associate of Dr. Walter Bauer. He presented a most informative study of the clinical and pathological history of Rheumatoid Arthritis. As well, he told us of their disappointing results with Cortisone—ACTH therapy in this group of cases.

Members of the committee in attendance were Drs. Richard Hawkes, Edward Asherman, of Portland; Robert Kellogg of Bangor; Robert Frost of Auburn; and George Robertson of Waterville.

The Maine Arthritis and Rheumatism Foundation had as Chairman of its drive during the past year, Mr. Ralph Bramhall. He asked me to contact the Maine doctors to provide the names of Arthritic individuals. These people it was felt could be a nucleus for organization of a Fund Committee to work year after year in their communities. It was expected that they not be asked for funds but asked to organize or be a part of a fund-raising committee in their section. The organization never got organized but it is hoped the plan

will work out as intended in the future. In any case, \$3500.00 was raised last year, to support our work.

Respectfully submitted,

PHILIP P. THOMPSON, JR., M. D.,
Chairman.

Committee on Mental Health

To the Officers and Members of the Maine Medical Association:

The problem of sex education in public schools continues to arise throughout the State. It is gratifying to learn that several larger communities are showing films such as *Human Beginnings and Human Growth*, with appropriate discussion and question periods. Several physicians have been called upon to talk to high school students and answer questions regarding sex. We would like to repeat our belief that sex education is an integral part of a general education for living and should be part of a course in Family Relations and Preparation for Family Living in the schools. Physicians should be able to advise parents and teachers in regard to sex education. We would like to recommend a workshop on "Sex Guidance in Family Life Education" to be held at the Boston University Summer Session, July 9 through July 27, 1951, for those who might be interested.

We would like to bring to the attention of the Society the fact that Maine now has a study home for emotionally disturbed children—The Sweetser Children's Home in Saco. Here children can be observed, studied and treated under the supervision of a pediatrician, psychiatrist, psychologist and psychiatric social worker. We consider this evidence of considerable progress in the Mental Health field in the State. We would suggest that all physicians acquaint themselves with the school and its work.

Some physicians may not know that the Division of Mental Health, State Department of Health and Welfare, conducts Mental Health Clinics for children and adults throughout the State at regular intervals. A list of these clinics is printed in the MAINE MEDICAL JOURNAL from time to time.

We understand that the Division of Mental Health would be glad to provide a speaker on a Mental Health topic at the Annual Meeting if the members so desire.

Respectfully submitted,

MARGARET R. SIMPSON, M. D.,
Chairman.

State Committee for National Education

To the Officers and Members of the Maine Medical Association:

The chief activity of the Education Committee has been centered on reaching the high school pupils. It is the feeling that a proper and intelligent understanding by them would be a very worthwhile influence in the homes. For this reason every high school in the State of Maine has been sent the new book by Dr. Bauer, "Santa Claus, M. D." It is felt that it presents in a factual and readable manner the pertinent information needed at this time.

It is hoped that our budget will permit the adding of new books to high school libraries as worthwhile ones appear.

The committee intends to continue to discuss and aid in giving a better understanding of the fallacies of Socialized Medicine before groups, large or small.

Respectfully submitted,

MARTYN A. VICKERS, M. D.,
Chairman.

Continued on page 197

Program

97th ANNUAL SESSION

MAINE MEDICAL ASSOCIATION

JUNE 17, 18, 19, 1951



POLAND SPRING HOUSE

POLAND SPRING, MAINE

Program Arranged by the Scientific Committee



FRANKLIN F. FERGUSON, M. D.

Chairman

INFORMATION

Registration:

Sunday: 2.00 P. M. to 6.00 P. M.

Monday and Tuesday: 8.30 A. M. to 6.00 P. M.

Registration headquarters will be in the Lobby of the Poland Spring House. Every member and guest is requested to register and receive a badge on arrival.

Papers:

All papers read before this Association shall be its property for publication in "The Journal of the Maine Medical Association," and when read shall be deposited with the Secretary, Dr. Frederick R. Carter.

Visiting Delegates:

Introduction of Visiting Delegates will take place Monday afternoon, June 18th, at 4.00 P. M.

Meeting Places:

Consult Bulletin Board.

Commercial Exhibits:

Ample time should be available to members to visit the Commercial Exhibits during the meeting.

Please register at these exhibits as we are indebted to them for much of the expense of running these meetings.

Arranged by the Scientific Committee
Franklin F. Ferguson, M. D., Chairman

SUNDAY, JUNE 17, 1951

3.00 P. M.

FIRST MEETING OF THE HOUSE OF DELEGATES

C. Harold Jameson, M. D., President-Elect, presiding

Visit the Commercial Exhibits

7.00 P. M.

DINNER:

Speaker:

Ernest C. Marriner, Dean of the Faculty, Colby College

Subject: The Problems of Pre-Medical Education

MONDAY, JUNE 18, 1951

9.00 A. M.

GENERAL ASSEMBLY:

Presiding: Foster C. Small, M. D., President

Announcements:

Franklin F. Ferguson, M. D., Chairman, Scientific Committee

Frederick R. Carter, M. D., Secretary

9.30 A. M.-12.00 Noon

GENERAL SESSION:

Loring W. Pratt, M. D., Waterville, Chairman

X-ray Conference:

Forrest B. Ames, M. D., Bangor

Symposium on Burns:

Charles F. Branch, M. D., William V. Cox, M. D.,

Ross W. Green, M. D., Lewiston

ACTH and Cortisone in Surgery:

Edward L. Howes, M. D., Department Surgeon, Columbia University College of Physicians and Surgeons

12.30 P. M.

LUNCHEON

LUNCHEON MEETINGS:

County Presidents and Secretaries

John W. Cline, M. D., President-Elect, American Medical Association, will be present

Visit the Commercial Exhibits

2.00 P. M.-4.00 P. M.

GENERAL SESSION:

Franklin F. Ferguson, M. D., Portland, Chairman
Surgery of the Thyroid Gland:

E. S. Judd, M. D., Surgeon, Mayo Clinic

Hard of Hearing Program:

George O. Cummings, M. D., Portland

President's Address:

Foster C. Small, M. D., Belfast

4.00 P. M.

INTRODUCTION OF VISITING DELEGATES

ELECTION OF PRESIDENT-ELECT

4.30 P. M.

SECOND MEETING OF THE HOUSE OF DELEGATES

C. Harold Jameson, M. D., President-Elect, presiding

Visit the Commercial Exhibits

7.00 P. M.

DINNER:

Speaker:

John W. Cline, M. D., President-Elect, American Medical Association

TUESDAY, JUNE 19, 1951

9.00 A. M.-12.00 Noon

GENERAL SESSION:

Robert W. Belknap, M. D., Damariscotta, Chairman

Symposium on Fractures and Trauma:

Howard L. Apollonio, M. D., Rockland

Amputee Demonstration — Vocational Rehabilitation Group

Obstetrics for the General Practitioner:

H. Bristol Nelson, M. D., Obstetrician, Boston Lying-In Hospital

12.30 P. M.

LUNCHEON

Visit the Commercial Exhibits

2.30 P. M.-5.00 P. M.

MEDICO-LEGAL SOCIETY:

President, Arch H. Morrell, M. D., Presiding

Announcements

Presentation of Case:

Wilson H. McWethy, M. D., Medical Examiner,
Augusta

Poisons from the Chemist's Point of View:

Dr. Joseph Walker, Boston, Instructor, Harvard Medico-
Legal Department

Poisons from a Medico-Legal Standpoint:

Richard Ford, M. D., Head of Harvard Medico-Legal
Department

2.30 P. M.-5.00 P. M.

MAINE HEART ASSOCIATION:

Ralf Martin, M. D., Portland, Chairman

Annual Meeting

Multiple Occult Pulmonary Emboli Complicating Conges-
tive Heart Failure:

Wilbur B. Manter, M. D., Bangor

Effect of Exercise on Certain Aspects of the Circulation in
Patients with Mitral Stenosis—A Preliminary Report:

Harry A. Bliss, M. D., Portland

7.00 P. M.

ANNUAL BANQUET:

Speaker: Governor Frederick G. Payne

Presentation of Fifty-Year Medals, Five- and Ten-Year
Bars

Presentation of Golf Prizes

SPECIAL NOTICES

MONDAY, JUNE 18, 1951

9.30 A. M.

OPHTHALMOLOGICAL SECTION:

Howard L. Hill, M. D., Waterville, Chairman

Program to be announced

12.30 P. M.

MAINE RADIOLOGICAL SOCIETY—ANNUAL MEETING:

Forrest B. Ames, M. D., Bangor, President

A luncheon meeting

TUESDAY, JUNE 19, 1951

10.00 A. M.

MAINE MEDICO-LEGAL SOCIETY:

Joint meeting with County Attorneys' Association

Annual Reports—Election of Officers—New Business

Dr. Ford and Dr. Walker will be present and talk on
matters of interest

12.30 P. M.

MAINE HEART ASSOCIATION — MEETING OF BOARD OF
DIRECTORS:

Eugene H. Drake, M. D., Portland, President

A luncheon meeting

EAR, NOSE AND THROAT SECTION — LUNCHEON MEETING:

Loring W. Pratt, M. D., Chairman

Fifty-Year Service Medals

Fifty-Year Service Medals will be presented to the fol-
lowing members Tuesday evening, June 19, at the Annual
Banquet.

Cumberland County Medical Society

Luther A. Brown, M. D., Portland

Boston University School of Medicine, 1901

Harris B. Haskell, M. D., Portland

Harvard Medical School, 1901

Fred P. Webster, M. D., Portland

Harvard Medical School, 1901

Kennebec County Medical Society

Joseph E. Odiorne, M. D., Cooper's Mills

Bowdoin Medical School, 1901

Oxford County Medical Society

Raymond R. Tibbetts, M. D., Bethel

Bowdoin Medical School, 1901

Penobscot County Medical Society

Martin C. Maddan, M. D., Old Town

Bowdoin Medical School, 1901

York County Medical Society

Ansel S. Davis, M. D., Springvale

Bowdoin Medical School, 1901

Clarence F. Kendall, M. D., Biddeford

Bowdoin Medical School, 1901

Five- and Ten-Year Bars

The following members who received their Fifty-Year Medals in June, 1946, will be presented with a Ten-Year Bar at the Annual Banquet, June 19.

Aroostook County Medical Society

Wiley E. Sincock, M. D., Caribou

Cumberland County Medical Society

William H. Bradford, M. D., Portland

Piscataquis County Medical Society

Nathaniel H. Crosby, M. D., Milo

Five-Year Bars will be presented to the below listed members who received their Fifty-Year Medals at the June, 1946, annual session.

Cumberland County Medical Society

Thomas Tetreau, M. D., Portland

Hancock County Medical Society

Hiram A. Holt, M. D., Winter Harbor

Somerset County Medical Society

Walter S. Stinchfield, M. D., Skowhegan

GOLF TOURNAMENT

Francis A. Winchenbach, M. D., Bath, Chairman

Art — Hobby Exhibit

The first annual Art Hobby Exhibit will take place at the Poland Spring House, during the 97th annual session.

Participants are requested to notify Dr. Frederick R. Carter, Secretary-Treasurer, Maine Medical Association, 142 High Street, Portland, of their entries as early as possible.

If you plan to participate please get this information in the mail without delay.

Convention Rates

Poland Spring House

Poland Spring, Maine

The Convention Rates for the 1951 Annual Session are as follows:

Double room with twin beds and private bath — \$13.00 per person per day.

Two double rooms with twin beds and connecting bath, or a double room and single room with connecting bath — \$13.00 per person per day.

Single room with private bath — \$15.00 per day.

A fifteen percent gratuity will be added to the bills of members and guests as they check out. This relieves conventioners of the responsibility of tipping during the session.

Single or double room without bath — \$11.00 per person per day.

Charge for non-registered guests for meals will be as follows:

Breakfast	\$2.00
Luncheon	3.00
Dinner	4.00
Banquet	5.00

MAKE YOUR RESERVATIONS NOW!

Physical Medicine and Rehabilitation for Patients with Hemiplegia—Continued from page 175

conditions, only one or more are obtainable. Hemiplegia offers the physiatrist a challenge and will require therapy from all branches of his armamentarium to obtain the maximum results in the four objectives above stated. With the estimate of fifty percent of such cases being capable of self care and possibly twenty percent of these being capable of gainful employment we have a definite goal to work for with this type of patient.

REFERENCES

Wm. B. Snow: O. T. and Rehabilitation, Vol. 28, No. 6.
Bierman: Physical Medicine in General Practice.
A. L. Watkins: Physical Medicine in General Practice.
Covalt, Yamshon, Nowicki: American Journal of Occupational Therapy, Vol. III, No. 6.
"Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration."

PROGRAM

**Woman's Auxiliary
to the**

Maine Medical Association

Third Annual Convention, June 17, 18, 19, 1951

Poland Spring House

Poland Spring, Maine

Information

All meetings of the Woman's Auxiliary will be held at the Mansion House, except for Luncheon meetings, which will be at the Poland Spring House.

Dinner meetings will be held in conjunction with the Maine Medical Association. See their Official Program for details.

Any changes in the program will be posted on the Bulletin Board.

2.00 P. M. Meeting open to all women attending the Maine Medical Association Convention. Greetings from Maine Medical Association—Dr. Foster C. Small, President

Pledge, Minutes, Treasurer's Report, Introduction of Guests, President's Report, Installation of Officers

Address by Mrs. Harold F. Wahlquist

7.00 P. M. Dinner

SUNDAY, JUNE 17, 1951

- 3.00 P. M.
to
6.00 P. M. Registration (Registration fee, \$1.00)
7.00 P. M. Dinner

MONDAY, JUNE 18, 1951

- 9.00 A. M.
to
6.00 P. M. Registration
9.00 A. M. Executive Board and Council Meeting
9.30 A. M. County Delegates, Board and Council Meeting
10.30 A. M. Education Program for Members
Mrs. Harold Dumont of Skowhegan, for Infantile Paralysis Foundation. Movie, "In Daily Battle," and talk
Miss Mary C. Leo, Brunswick, Executive Director, Maine Cancer Society. Movie, "Self Examination of the Breast," with a talk
12.30 P. M. Luncheon honoring Mrs. Harold F. Wahlquist, President of the Woman's Auxiliary to the American Medical Association. Guests will include Presidents and Presidents-elect of the other New England States.

TUESDAY, JUNE 19, 1951

- 9.00 A. M.
to
6.00 P. M. Registration
10.00 A. M. Golf Tournament and Putting Contest
12.30 P. M. Lunch
2.00 P. M. Bridge, Canasta and Duplicate Bridge
7.00 P. M. Annual Banquet of the Maine Medical Association

Program Committee

- Chairman—Mrs. Penry L. B. Ebbett
Hostesses—Mrs. Stephen A. Cobb
Registration—Mrs. Henry C. Thacher
Identification—Mrs. Clyde I. Swett
Prizes—Mrs. Harold E. Small
Card Party—Mrs. Otis B. Tibbetts
Golf—Mrs. Harold E. Small
Transportation—Mrs. Richard S. Hawkes
Finances—Mrs. Henry C. Thacher
Displays—Mrs. Edward W. Holland
Nominating Committee Chairman—Mrs. James Shippee
Publicity—Mrs. William V. Cox

OFFICIAL DELEGATES — 1951

County Medical Societies

FIRST DISTRICT

Cumberland County

Delegates (two years):

Charles R. Geer, M. D., 690 Congress St., Portland
G. E. C. Logan, M. D., 144 State St., Portland
John M. Bischoffberger, M. D., Naples
Eugene P. McManamy, M. D., 39 Deering St., Portland

(one year):

Eugene E. O'Donnell, M. D., 32 Deering St., Portland
Richard S. Hawkes, M. D., 47 Deering St., Portland
Joseph E. Porter, M. D., 22 Arsenal St., Portland
George L. Maltby, M. D., 203 State St., Portland

Alternates (two years):

Daniel F. Hanley, M. D., Brunswick
Henry A. Hudson, M. D., Bridgton
Sidney R. Branson, M. D., 37 Main St., South Windham
Ralph Heifetz, M. D., 173 State St., Portland

(one year):

Francis W. Hanlon, M. D., 46 Deering St., Portland
Edward G. Asherman, M. D., 31 Deering St., Portland
Richard J. Goduti, M. D., 704 Congress St., Portland
Barron F. McIntire, Jr., M. D., Yarmouth

York County

Delegates:

Carl E. Richards, M. D., 28 Winter St., Sanford
Paul S. Hill, Jr., M. D., 176 Main St., Saco
Charles W. Kinghorn, M. D., Kittery

Alternates:

James H. Macdonald, M. D., 103 Main St., Kennebunk
Kenneth J. Cuneo, M. D., 31 Summer St., Kennebunk
J. Robert Downing, M. D., 37 Storer St., Kennebunk

SECOND DISTRICT

Androscoggin County

Delegates:

Romeo A. Beliveau, M. D., 89 Pine St., Lewiston
Waldo A. Clapp, M. D., 215 College St., Lewiston
Daniel F. D. Russell, M. D., Leeds
Eustache N. Giguere, M. D., 109 Cedar St., Lewiston

Alternates:

Robert A. Frost, M. D., 2 Goff St., Auburn

Franklin County

Delegate:

George L. Pratt, M. D., Farmington

Alternate:

Currier C. Weymouth, M. D., Farmington

Oxford County

Delegates:

John A. Greene, M. D., 96 Congress St., Rumford
Dexter E. Elsemore, M. D., Dixfield

Alternate:

Peter B. Aucoin, M. D., 77 Rumford Ave., Rumford

THIRD DISTRICT

Knox County

Delegate:

Wesley N. Wasgatt, M. D., 41 Talbot Ave., Rockland

Alternate:

Frederick C. Dennison, M. D., Thomaston

Lincoln-Sagadahoc Counties

Delegates:

Francis A. Winchenbach, M. D., 910 Washington St., Bath
Stanley R. Lenfest, M. D., Waldoboro

FOURTH DISTRICT

Kennebec County

Delegates:

Lorrimar M. Schmidt, M. D., Veterans' Adm., Togus
George J. Robertson, M. D., 33 College Ave., Waterville
Hugh J. Matthews, M. D., Gardiner
Thomas F. Fay, M. D., 284 Water St., Augusta
John F. Reynolds, M. D., 101 Main St., Waterville

Alternates:

Robert W. Wilson, M. D., Veterans' Adm., Togus
Frederic B. Champlin, M. D., 216 Main St., Waterville
Anthony E. Lepore, M. D., 72 Church St., Gardiner
Henry A. Brann, M. D., 31 Western Ave., Augusta
James N. Shippee, M. D., 122 Main St., Winthrop

Somerset County

Delegates:

George E. Sullivan, M. D., Bingham
Howard L. Reed, M. D., 235 Madison Ave., Skowhegan

Waldo County

Delegate:

Carl H. Stevens, M. D., 18 Franklin St., Belfast

Alternate:

George L. Temple, M. D., 18 Franklin St., Belfast

FIFTH DISTRICT

Hancock County

Delegates:

James H. Crowe, M. D., 121 Main St., Ellsworth
Philip L. Gray, M. D., Blue Hill

Washington County

Delegate:

Oscar F. Larson, M. D., Machias

Alternate:

Robert G. MacBride, M. D., Lubec

SIXTH DISTRICT

Aroostook County

Delegates:

Armand Albert, M. D., Van Buren

Clement L. Donahue, M. D., 22 Main St., Caribou

Alternates:

Clyde I. Swett, M. D., Island Falls

Bernard H. Gagnon, M. D., Houlton

Penobscot County

Delegates:

William A. Purinton, M. D., 15 Ohio St., Bangor

Herbert C. Scribner, M. D., 259 Union St., Bangor

John J. Pearson, Jr., M. D., Old Town

Winford C. Adams, M. D., 66 Washington St., Brewer

Piscataquis County

Delegate:

Ralph C. Stuart, M. D., Guilford

Out-of-State Delegates

New Hampshire Medical Society

Carleton R. Metcalf, M. D., Concord, N. H.

Clarence E. Dunbar, M. D., Manchester, N. H.

Vermont State Medical Society

John H. Woodruff, M. D., Barre, Vt.

The Massachusetts Medical Society

Samuel Proger, M. D., Boston, Mass.

Rhode Island Medical Society

The Connecticut State Medical Society

James D. Corridon, M. D., So. Norwalk, Conn.

Stanley B. Weld, M. D., Hartford, Conn.

The New Brunswick Medical Society

E. A. Stuart, M. D., St. Andrews, N. B.

Canadian Medical Association, Quebec Division

J. Olivier, M. D., Sherbrooke, P. Q.

COMMERCIAL EXHIBITS

Ayerst, McKenna & Harrison, Ltd., 22 East 40th St., New York 16, N. Y.

Representative, Mr. Edward C. McMahon

Blackwell's, 207 Strand Building, Portland 3, Me.

Representatives, Mr. Elmer Blackwell and Mr. Oakley R. Sanborn

Buffington's, Inc., Worcester 8, Mass.

Representatives, Mr. R. C. Corson and Mr. D. J. Ratte

Burroughs Wellcome & Co., Inc., Tuckahoe 7, N. Y.

Representative, Mr. J. W. Rickards

Ciba Pharmaceutical Products, Inc., Summit, N. J.

Mr. H. M. Bilden, Assistant Sales Manager

Davies, Rose & Company, Ltd., 22 Thayer St., Boston 18, Mass.

Representative, Mr. Frederick L. Moulton

F. A. Davis & Company, 1914-16 Cherry St., Philadelphia 3, Pa.

Representative, Mr. R. M. Richter

DoHo Chemical Corporation, 100 Varick St., New York 13, N. Y.

Mr. Herbert R. Steinman, Vice President

C. B. Fleet Co., 921-927 Commerce St., Lynchburg, Va.

Representative, Mr. Raymond S. Carman

Geo. C. Frye Company, 116 Free St., Portland, Me.

Representatives, Mr. Milton S. Kimball, Mr. Hubert H. Honan, Mr. Sidney F. Cheney, Mr. Claude W. Lamson and Mr. Millard C. Webber, Jr.

Holland-Rantos Company, 145 Hudson St., New York 13, N. Y.

Representative, Mr. Robert B. Richard

Kremers-Urban Co., 141 West Vine St., Milwaukee 1, Wisconsin

Representative, Mr. James G. Austin

- Lederle Laboratories, 30 Rockefeller Plaza, New York 20, N. Y.**
Representatives, Mr. Rocco Maffei, Mr. C. H. Johnson and Mr. Kenneth Morrill
- Eli Lilly and Company, Indianapolis 6, Ind.**
Representatives, Mr. J. F. Raleigh, Mr. R. J. Dalton and Mr. G. R. Taddell
- E. F. Mahady Company, 851 Boylston St., Boston 16, Mass.**
Mr. E. J. Runge, Vice-President
- Maine Surgical Supply Co., 10 Longfellow Sq., Portland, Me.**
Representatives, Mr. John H. Lacy, Mr. Leo Curran, Mr. Robert Blair and Mrs. Maynard Crockett
- M & R Dietetic Laboratories, Columbus 16, Ohio**
M. Herbert W. Sackett, Regional Manager (Similac Division)
- Mead Johnson Company, Evansville 21, Indiana**
Representative, Mr. Angus D. MacLean
- Medco Products Co., 3603 E. Admiral Place, Tulsa 12, Okla.**
Mr. M. E. DeGroff, Director
- Chas. Pfizer & Co., Inc., 630 Flushing Ave., Brooklyn 6, N. Y.**
Representatives, Mr. Richard Hosmer and Mr. Thomas Gratton
- Picker X-Ray Corporation, 300 Fourth Ave., New York 10, N. Y.**
Representative, Mr. J. Tacker
- Philip Morris & Co., Ltd., Inc., 100 Park Ave., New York 17, N. Y.**
Mr. W. F. Greenwald, Research Director
- A. H. Robins Co., Inc., Richmond, Va.**
Representative, Mr. D. F. Kidney
- W. B. Saunders Company, West Washington Sq., Philadelphia 5, Pa.**
Representative, Mr. Joseph Juneman
- Schering Corporation, 2 Broad St., Bloomfield, N. J.**
Mr. George E. Hlavin, Assistant Manager, Professional Service Dept.
- G. D. Searle & Co., P. O. Box 5110, Chicago 80, Ill.**
Representative, Mr. John Pash
- E. R. Squibb & Sons, 745 Fifth Ave., New York 22, N. Y.**
Mr. Harald Tonnessen, Manager, Professional Exhibits Dept.
- Surgeons' & Physicians' Supply Co., 761 Boylston St., Boston 16, Mass.**
Representatives, Mr. Charles H. Joy and Mr. John R. Stutz
- The Borden Company, 350 Madison Ave., New York 17, N. Y.**
Mr. Ted Miller, Advertising Manager
- The Coca-Cola Company, Atlanta 1, Georgia**
Mr. A. W. Hughes, Manager Lewiston Plant
- The National Drug Company, Philadelphia 44, Pa.**
Mr. Robert P. Neale, Advertising Manager
- The P. J. Noyes Company, Lancaster, N. H.**
Representative, Mr. Joe E. Brown
- The William S. Merrell Company, Lockland Station, Cincinnati, Ohio**
Mr. David Palmer
- Thomas W. Reed Company, 533 Commonwealth Ave., Boston, Mass.**
Representative, Mr. J. F. Walsh
- U. S. Vitamin Corporation, 250 East 43rd St., New York 17, N. Y.**
Representative, Mr. William G. Moran
- Vaisey-Bristol Shoe Company, Inc., Rochester 3, N. Y.**
Representative, Mr. John J. McKee
- Winthrop-Stearns, Inc., 1450 Broadway, New York 18, N. Y.**
Mr. John J. Martocci, Advertising Dept.
- Wyeth, Incorporated, 1600 Arch St., Philadelphia 3, Pa.**
Representative, Mr. Ronald Macomber
- Brewer & Company, Inc., 67 Union St., Worcester 8, Mass.**
Representative, Paul C. Barton, M. D.
- Rose-Derry Company, 95 Chapel St., Newton, Mass.**
Representative, Mr. Robert Kramer
- H. D. Burrage Co., 499 Fore St., Portland, Me.**

*Special Committees—Continued from page 188***Medical School Committee**

To the Officers and Members of the Maine Medical Association:

Comment regarding the possibility of a medical school in Maine continues to arrive. The Medical School Committee was reappointed by the President of the Maine Medical Association, in order that it might be possible to lay plans for receiving funds for a medical school if such funds became available. A bill amending the charter of the University of Maine was introduced in the 95th Legislature. On February 18, 1951, the President, Dr. Foster Small, the Executive

Secretary, and the Chairman of the Medical School Committee appeared and spoke in favor of this legislation before the Educational Committee of the state legislature. The bill was passed, signed by the Governor and has become a law. It provides for the establishment of a medical school and the conferring of the M. D. degree by the state university. The establishment of such a school is, of course, dependent upon the availability of funds to meet its expenses.

Respectfully submitted,

EUGENE H. DRAKE, M. D.,
Chairman.

REPORT OF THE SECRETARY-TREASURER

To the Officers and Members of the Maine Medical Association:

There are 761 members in the Association; 644 Active; 47 Honorary; 8 Affiliate; 51 Senior and 11 in Military Service. Thirty-nine new members have been added to our roster during the past year. We have lost thirteen members by death, eight have resigned or moved out of the State and thirteen have not paid their 1951 State dues.

The Fall Clinical Session was held in Bangor, October 15 and 16, with approximately 200 members of the Association in attendance. The session was sponsored by the Penobscot County Society and the program arranged by Dr. Herbert C. Scribner and Dr. Clement S. Dwyer. Mr. Milton McGorrill of Orono, was guest speaker at the opening session, Sunday, October 15, at the Bangor House. Clinics at the Eastern Maine General Hospital on Monday, were conducted by members of the Surgical, Medical and Pediatric Services. The Staff of the Hospital entertained members of the Association and the Woman's Auxiliary at a Cocktail Party at the Bangor House from 5.00 to 7.00 P. M. that evening. C. Stuart Welch, M. D., of the Pratt Diagnostic Clinic, Boston, was guest speaker at the dinner Monday evening.

An Interim Meeting of the House of Delegates was held in Pittsfield, April 14, 1951. Thirty-one delegates attended this meeting, which was held to acquaint delegates with matters to come up for discussion and action at the annual meeting of the House in June. The Council recommended budget for 1951-1952 was presented by Dr. Eugene H. Drake, Chairman of the Council. Reports were presented by the following: Dr. Eugene H. Drake, Chairman of the Health Insurance Committee; Dr. Martyn A. Vickers, Chairman of the State Committee for National Education; Dr. Frederick T. Hill, Chairman of the Public Relations Committee; Dr. Richard C. Wadsworth, Chairman of the Committee on Blood Transfusions; Dr. Clyde I. Swett, member of the Committee on Medical Education and Hospital, and W. Mayo Payson, Executive Secretary, relative to the Nineteen-Fifty Legislative Session. Mr. Payson also presented a few questions rela-

tive to the revised Constitution and By-Laws, which will be discussed at the June meeting.

The Ninety-seventh annual session of the Maine Medical Association will be held at the Poland Spring House, Poland Spring, Maine, June 17, 18 and 19. Franklin F. Ferguson, M. D., of Portland, Chairman of the Scientific Committee, and members of his committee, have arranged an excellent program for this event, which is published elsewhere in this issue of the JOURNAL.

Fifty-Year Service Medals will be presented to the following members, who were graduated from Medical School in 1901, at the annual banquet Tuesday evening, June 19, by Foster C. Small, M. D., President; Luther A. Brown, M. D., Harris B. Haskell, M. D., Fred P. Webster, M. D., Joseph E. Odiorne, M. D., Raymond R. Tibbetts, M. D., Martin C. Madden, M. D., Ansel S. Davis, M. D., and Clarence F. Kendall, M. D. The following members who received Fifty-Year Medals at the 1941 annual session will receive Ten-Year Bars; Wiley E. Sincok, M. D., William H. Bradford, M. D., and Nathaniel H. Crosby, M. D. Five-Year Bars will be presented to; Thomas A. Tetreau, M. D., Hiram A. Holt, M. D., and Walter S. Stinchfield, M. D.

Forty-one companies have reserved Commercial Exhibit space for this session; the largest number on record. I can't urge you too strongly to visit each one of these exhibits and so show your appreciation to them for their support of your Association.

The books of the Association and JOURNAL were closed and audited, as of this date, by Jordan and Jordan, Accountants and Auditors, and were found to be complete and correct in all details of record. Their report, which will be published in the July issue of the JOURNAL, will be available to any member attending the annual session and a copy placed on file in the Association office.

Respectfully submitted,

FREDERICK R. CARTER, M. D.,
Secretary-Treasurer.

May 31, 1951.

News and Notes—Continued from page 180

**Department of Health and Welfare
Division of Maternal and Child Health
(Including Services for Crippled Children)**

Clinic Schedule—1951**ORTHOPEDIC CLINICS**

Portland — Maine General Hospital, 9.00-11.00 a. m.: Jan. 8, Feb. 12, Mar. 12, April 9, May 14, June 11, July 9, Aug. 13, Sept. 10, Oct. 8, Nov. 5, Dec. 10.

Lewiston — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 19, Feb. 16, Mar. 16, April 20, May 18, June 15, July 20, Aug. 17, Sept. 21, Oct. 19, Nov. 16, Dec. 21.

Rumford — Community Hospital, 1.30-3.00 p. m.: Mar. 14, June 20, Sept. 19, Dec. 19.

Waterville — Thayer Hospital, 1.30-3.00 p. m.: Feb. 15, April 26, June 28, Aug. 23, Oct. 25, Dec. 27.

Rockland — Knox County Hospital, 1.30-3.00 p. m.: Feb. 8, May 17, Aug. 16, Nov. 15.

Machias — Normal School, 1.30-3.00 p. m.: Feb. 14, Apr. 11, June 13, Aug. 8, Oct. 10, Dec. 12.

Presque Isle — Northern Maine Sanatorium, 9.00-11.00 a. m.—1.00-3.00 p. m.: Jan. 9, Mar. 7, May 8, July 11, Sept. 11, Nov. 7.

Houlton — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 6, July 10, Nov. 6.

Fort Kent — Normal School, 10.00-1.00 p. m.: Jan. 10, May 9, Sept. 12.

Bangor — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 25, Mar. 29, May 24, July 26, Sept. 27, Nov. 29.

CARDIAC CLINICS

Portland — Maine General Hospital, 9.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

Bangor — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

HARD-OF-HEARING CLINICS

Waterville — Thayer Hospital, 1.30-3.30 p. m.: Feb. 21, June 6, Sept. 5, Dec. 5.

PEDIATRIC CLINICS

Bangor — Eastern Maine General Hospital, 1.30 p. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

Waterville — Thayer Hospital, 1.30 p. m.: Jan. 2, Feb. 6, Mar. 6, April 3, May 1, June 5, July 3, Aug. 7, Sept. 4, Oct. 2, Nov. 6, Dec. 4.

Presque Isle — Northern Maine Sanatorium, 1.30 p. m.: Jan. 24, Mar. 28, May 23, July 25, Sept. 26, Nov. 28.

By appointment only.

**Neurosurgical and Convulsive Clinics
at the
Maine General Hospital**

Neurological and Neurosurgical Clinics, both therapeutic and diagnostic, are held at the Maine General Hospital, Portland, on the 1st and 3rd Thursday of each month at 2.00 P. M. The convulsive clinic, designated for the diagnosis and treatment of epilepsy and other convulsive disorders, is held at the same time on the 2nd Thursday of each month.

Mental Health Clinic Schedule

The Division of Mental Health offers psychiatric clinic service to children and adults in the following cities:

Portland — Health and Welfare Department, 178 Middle Street. Every Tuesday.

Lewiston — Out-Patient Department, Central Maine General Hospital. Every Monday.

Augusta — Bureau of Health, Division of Mental Health. By Appointment.

Waterville — Out-Patient Department, Thayer Hospital. 2nd Thursday, 4th Wednesday.

Bangor — Out-Patient Department, Eastern Maine General Hospital. 1st Wednesday afternoon.

Valentine School, Union Street. 1st Thursday.

A traveling clinic visits the following towns and cities at irregular intervals: Brunswick, Caribou, Farmington, Fort Kent, Houlton, Lincoln, Machias, Old Town, Presque Isle, Rockland, Rumford and South Paris. All clinics are staffed by a psychiatrist and psychologist.

Referrals may be made by private physicians, parents, families, social agencies, school superintendents, Department of Education, all divisions within the Department of Health and Welfare. Application blanks may be obtained from the main office of the Division of Mental Health — State House, Augusta.

Patients are seen by appointment only. Each child must be accompanied by a parent or guardian. Applications should be sent to the Director, Division of Mental Health, Department of Health and Welfare, State House, Augusta, where all appointments are made.

Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Armand L. Guite, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.

OFFICIAL ROSTER



MAINE MEDICAL ASSOCIATION



PAST PRESIDENTS

MEMBERS



COUNTY AND ALPHABETICAL LISTING



MAY 31, 1951

Past Presidents

Maine Medical Association

*Isaac Lincoln, M. D., Brunswick,	April-June, 1853	*Hiram Hunt, M. D., Greenville,	1902-1903
*James McKeen, M. D., Topsham,	1853-1854	*Augustus S. Thayer, M. D., Portland,	1903-1904
*Charles Millett, M. D., Lewiston,	1854-1855	*F. L. Dixon, M. D., Lewiston,	1904-1905
*Joseph H. Estabrook, M. D., Camden,	1855-1856	*Randall D. Bibber, M. D., Bath,	1905-1906
*Hosea Rich, M. D., Bangor,	1856-1857	*C. E. Williams, M. D., Auburn,	1906-1907
*Gilman Daveis, M. D., Portland,	1857-1858	*B. B. Foster, M. D., Portland,	1907-1908
*J. C. Bradbury, M. D., Old Town,	1858-1859	*Alfred D. Sawyer, M. D., Fort Fairfield,	1908-1909
*H. H. Hill, M. D., Augusta,	1859-1860	*Galen M. Woodcock, M. D., Bangor,	1909-1910
*T. G. Stockbridge, M. D., Bath,	1860-1861	*E. H. Bennett, M. D., Lubec,	1910-1911
*H. M. Harlow, M. D., Augusta,	1861-1862	*Stanley P. Warren, M. D., Portland,	1911-1912
*Alonzo Garcelon, M. D., Lewiston,	1862-1863	*Ralph H. Marsh, M. D., Guilford,	1912-1913
*J. T. Gilman, M. D., Portland,	1863-1864	*W. C. Peters, M. D., Bangor,	1913-1914
*N. P. Monroe, M. D., Belfast,	1864-1865	*H. L. Bartlett, M. D., Norway,	1914-1915
*Amos Nourse, M. D., Bath,	1865-1866	*Erastus E. Holt, M. D., Portland,	1915-1916
*S. H. Tewksbury, M. D., Portland,	1866-1867	*W. F. Hart, M. D., Camden,	1916-1917
*Cyrus Briggs, M. D., Augusta,	1867-1868	*James A. Spalding, M. D., Portland,	1917-1918
*I. T. Dana, M. D., Portland,	1868-1869	*George H. Coombs, M. D., Waldoboro,	1918-1919
*D. McRuer, M. D., Bangor,	1869-1870	*H. B. Mason, M. D., Calais,	1919-1920
*B. F. Buxton, M. D., Warren,	1870-1871	*Theodore E. Hardy, M. D., Waterville,	1920-1921
*A. J. Fuller, M. D., Bath,	1871-1872	*Addison S. Thayer, M. D., Portland,	1921-1922
*A. P. Snow, M. D., Winthrop,	1872-1873	*L. T. Snipe, M. D., Bath,	1922-1923
*A. F. Page, M. D., Bucksport,	1873-1874	*C. A. Moulton, M. D., Hartland,	1923-1924
*Thomas H. Brown, M. D., Paris,	1874-1875	*F. W. Mann, M. D., Houlton,	1924-1925
*J. H. Bates, M. D., Yarmouth,	1875-1876	*J. D. Phillips, M. D., Southwest Harbor,	1925-1926
*E. F. Sanger, M. D., Bangor,	1876-1877	*L. P. Gerrish, M. D., Lisbon Falls,	1926-1927
*T. H. Jewett, M. D., South Berwick,	1877-1878	*N. M. Marshall, M. D., Portland,	1927 (Died in Office)
*M. C. Wedgwood, M. D., Lewiston,	1878-1879	*Herbert F. Twitchell M. D., Portland,	1927-1928
*S. C. Gordon, M. D., Portland,	1879-1880	*Frank Y. Gilbert, M. D., Portland,	1928-1929
*Wm. Warren Greene, M. D., Portland,	1880-1881	Delbert M. Stewart, M. D., South Paris,	1929-1930
*A. K. P. Meserve, M. D., Buxton,	1881-1882	*Charles B. Sylvester, M. D., Portland,	1930-1931
*George E. Brickett, M. D., Augusta,	1882-1883	Ernest V. Call, M. D., Lewiston,	1931-1932
*Oren A. Horr, M. D., Lewiston,	1883-1884	*E. Delmont Merrill, M. D., Dover-Foxcroft,	1932-1933
*Thomas A. Foster, M. D., Portland,	1884-1885	Warren E. Kershner, M. D., Bath,	1933-1934
*Sumner Laughton, M. D., Bangor,	1885-1886	Edwin W. Gehring, M. D., Portland,	1934-1935
*J. B. Walker, M. D., Thomaston,	1886-1887	*John L. Johnson, M. D., Bangor,	1935-1936
*Frederick C. Thayer, M. D., Waterville,	1887-1888	Frederick T. Hill, M. D., Waterville,	1936-1937
*Stephen H. Weeks, M. D., Portland,	1888-1889	*Ralph W. Wakefield, M. D., Bar Harbor,	1937-1938
*Benjamin F. Sturgis, M. D., Auburn,	1889-1890	Willard H. Bunker, M. D., York Harbor,	1938-1939
*Samuel B. Hunter, M. D., Machias,	1890-1891	George P. Pratt, M. D., Farmington,	1939-1940
*Edwin M. Fuller, M. D., Bath,	1891-1892	Thomas A. Foster, M. D., Portland,	1940-1941
*Alfred Mitchell, M. D., Brunswick,	1892-1893	P. L. B. Ebbett, M. D., Houlton,	1941-1942
*John A. Donovan, M. D., Lewiston,	1893-1894	Carl H. Stevens, M. D., Belfast,	1942-1943
*W. P. Giddings, M. D., Gardiner,	1894-1895	Oscar F. Larson, M. D., Machias,	1943-1944
*Lewis W. Pendleton, M. D., Portland,	1895-1896	R. V. N. Bliss, M. D., Blue Hill,	1944-1945
*D. A. Robinson, M. D., Bangor,	1896-1897	Adam P. Leighton, M. D., Portland,	1945-1946
*Wallace K. Oakes, M. D., Auburn,	1897-1898	John O. Piper, M. D., Waterville,	1946-1947
*Charles O. Hunt, M. D., Portland,	1898-1899	Stephen A. Cobb, M. D., Sanford,	1947-1948
*Bigelow T. Sanborn, M. D., Augusta,	1899-1900	Forrest B. Ames, M. D., Bangor,	1948-1949
*Edward H. Hill, M. D., Lewiston,	1900-1901	Ralph A. Goodwin, M. D., Auburn,	1949-1950
*Frederic H. Gerrish, M. D., Portland,	1901-1902		

* Deceased.

Members

Active—Honorary—Affiliate—Senior—Military

ANDROSCOGGIN COUNTY

ACTIVE MEMBERS

Anderson, Donald L.,	54 Pine St., Lewiston
Archambault, Philip L.,	75 Mill St., Auburn
Beeaker, Vincent H.,	85 Wood St., Lewiston
Beliveau, Bertrand A.,	56 Howe St., Lewiston
Beliveau, Romeo A.,	89 Pine St., Lewiston
Bernard, Romeo A.,	26 Beacon St., Lewiston
Bluhm, Samuel,	St. Mary's Hospital, Lewiston
Bousquet, Jean J.,	91 Bartlett St., Lewiston
Branch, Charles F.,	69 Gamage St., Auburn
Brien, Maurice,	76 Pine St., Lewiston

Buker, Edson B.,	80 Goff St., Auburn
Busch, John J.,	105 Elm St., Mechanic Falls
Caron, Frederic J.,	174 Bates St., Lewiston
Cartland, John E.,	117 Goff St., Auburn
Cattley, Amy L.,	477 Main St., Lewiston
Chapin, Milan A.,	237 Turner St., Auburn
Chenery, Frederick L., Jr.,	Monmouth
Chevalier, Paul R.,	355 Pine St., Lewiston
Clapp, Waldo A.,	215 College St., Lewiston
Clapperton, Gilbert,	21 Ryder St., Lewiston
Cox, William V.,	133 Court St., Auburn
Desaulniers, George E. D.,	106 Chestnut St., Lewiston
DuMais, Alcide F.,	125 College St., Lewiston

Fahey, William J., 17 Frye St., Lewiston
Fisher, Dean, 300 Main St., Lewiston
Flanders, Merton N., 344 Main St., Lewiston
Frost, Robert A., 108 Summer St., Auburn
Gauvreau, Horace L., 82 Pine St., Lewiston
Giguere, Eustache N., 109 Cedar St., Lewiston
Goldman, Morris E., 487 Main St., Lewiston
Goodwin, Ralph A., 56 Denison St., Auburn
Goodwin, Ralph A., Jr., 33 Court St., Auburn
Grant, Alton L., Jr., 133 Court St., Auburn
Green, Ross W., 33 Court St., Auburn
Greene, Merrill S. F., 466 Main St., Lewiston
Gross, Leroy C., 19 Goff St., Auburn
Haas, Rudolph, 488 Main St., Lewiston
Harkins, Michael J., 437 Main St., Lewiston
Hirshler, Max, 85 Pine St., Lewiston
James, Chakmakis, 47 Howe St., Lewiston
James, John A., 112 Summer St., Auburn
Lemaitre, Paul G., 80 Seventh St., Auburn
Lynn, Geraldine, 74 Pierce St., Lewiston
Martel, Dominique A., 460 Sabattus St., Lewiston
Methot, Frank P., 256 Lisbon St., Lewiston
Miller, Clark F., 778 Minot Ave., Auburn
Miller, Hudson R., 11 Turner St., Auburn
Morissette, Russell A., 70 Pine St., Lewiston
Murphy, D. Jerome, 126 College St., Lewiston
Nadeau, J. Paul, 91 Pine St., Lewiston
O'Connell, George B., 11 Lisbon St., Lewiston
Poulin, J. Emile, 194 Lisbon St., Lewiston
Pratt, Harold S., Livermore Falls
Rand, Carleton H., 219 Oak St., Lewiston
Rock, Daniel A., 477 Main St., Lewiston
Rowe, Gunther H., 42 Main St., Livermore Falls
Russell, Blinn W., 98 Pine St., Lewiston
Spear, William, 107 Main St., Lisbon Falls
Starks, Pauline G., 376 Main St., Lewiston
Steele, Charles W., 472 Main St., Lewiston
Sweatt, Linwood A., 48 Drummond St., Auburn
Thacher, Henry C., 11 Turner St., Auburn
Tibbetts, Otis B., 33 Court St., Auburn
Tousignant, Camille, 111 Pine St., Lewiston
Twaddle, Gard W., 57 Goff St., Auburn
Ulpts, Reynold G. E., 67 Webster St., Lewiston
Viles, Wallace E., Turner
Wakefield, H. Paul, 33 Nichols St., Lewiston
Williams, James A., 40 Pleasant St., Mechanic Falls

HONORARY MEMBERS

Hayden, Louis B., Livermore Falls
Peaslee, Clarence C., 42 Goff St., Auburn
Plummer, Albert W., Lisbon Falls
Rand, George H., Livermore Falls
Renwick, Ward J., 102 Goff St., Auburn
Webber, Wallace E., 297 Main St., Lewiston

AFFILIATE MEMBERS

Gottlieb, Julius, 210 College St., Lewiston
Thomas, Camp C., Greene

SENIOR MEMBERS

Call, Ernest V., 118 Pine St., Lewiston
Higgins, Everett C., 149 College St., Lewiston
Randall, Ray N., 19 Sabattus St., Lewiston
Roy, Leopold O., 54 Pine St., Lewiston
Russell, Daniel F. D., Leeds

AROOSTOOK COUNTY

ACTIVE MEMBERS

Albert, Armand, 193 Main St., Van Buren
Albert, Joseph L., Fort Kent
Ascher, David S., Patten
Aungst, Melvin R., Eagle Lake
Berrie, Lloyd H., 2 Main St., Caribou
Boone, Storer W., 194 Main St., Presque Isle
Brown, Stephen S., Mars Hill
Burr, Charles G., Houlton
Carter, Loren F., Presque Isle
Donahue, Clement L., 22 Main St., Caribou
Donahue, Gerald H., 5 Station St., Presque Isle

Donovan, Joseph A., Houlton
Ebbett, Penry L. P., Houlton
Faucher, Francois J., Grand Isle
Gagnon, Bernard H., Houlton
Gormley, Eugene G., Houlton
Greene, Theodore C., Houlton
Gregory, Frederick L., 16 High St., Caribou
Griffiths, Eugene B., Presque Isle
Harvey, Thomas G., 164 Main St., Fort Fairfield
Hogan, Chester F., Houlton
Johnson, Gordon N., Houlton
Kimball, Herrick C., Fort Fairfield
Kirk, William V., Eagle Lake
Labbe, Onil B., Van Buren
LaPorte, Paul C., Edmundston, N. B.
Larabee, Fay F., Washburn
Levesque, Romeo J., Frenchville
Madigan, John B., Houlton
Merrick, John R., 17 South Main St., Caribou
Osborne, John R., Houlton
Page, Rosario A., Sweden St., Caribou
Proctor, Ray A., 3 Teague St., Caribou
Reynolds, Arthur P., 181 Main St., Presque Isle
Savage, Richard L., Fort Kent
Somerville, Robert B., 264 Main St., Presque Isle
Somerville, Wallace B., Mars Hill
Swett, Clyde I., Island Falls
Toussaint, Leonid G., Fort Kent
Webber, John R., Houlton

SENIOR MEMBERS

Huggard, Leslie H., Limestone

HONORARY MEMBERS

Albert, Louis N., Van Buren
Damon, Albert H., Limestone
Doble, Eugene H., Presque Isle
Kalloch, Herbert F., Fort Fairfield
Sincock, Wiley E., Caribou

MILITARY SERVICE

Graves, Robert A., Fort Fairfield

CUMBERLAND COUNTY

ACTIVE MEMBERS

Agan, Robert W., 22 Arsenal St., Portland
Ansell, Harvey B., 39 Deering St., Portland
Applin, Hilton H., 129 Maine Ave., Brunswick
Aranson, Albert, 73 Deering St., Portland
Asali, Louis A., 29 Deering St., Portland
Asherman, Edward G., 31 Deering St., Portland
Babalian, Leon, 38 Deering St., Portland
Bachrach, Louis, Brunswick
Beck, Henry W., Gray
Bergmann, Jerome W., 131 State St., Portland
Bettle, Ronald A., Brunswick
Bickmore, Harold V., 723 Congress St., Portland
Bidwell, Robinson L., 203 State St., Portland
Bischoffberger, John M., Naples
Bishop, Lloyd W., 211 Vaughan St., Portland
Blaisdell, Elton R., 12 Deering St., Portland
Bramhall, Theodore C., 49 Deering St., Portland
Branson, Sidney R., 37 Main St., South Windham
Broggi, Frank S., 18 Neal St., Portland
Burbank, Bernerd H., 275 Cottage Rd., South Portland
Burns, Robert M., 810 Main St., Westbrook
Burrage, William C., 57 Deering St., Portland
Cappello, Joseph, 144 Spring St., Portland
Casey, William L., 131 State St., Portland
Center, Ervin A., Steep Falls
Christensen, Harry E., 672 Ocean Ave., Portland
Clarke, Chester L., 10 Congress Sq., Portland
Clarkin, Charles P., 131 State St., Portland
Conneen, Lawrence W., 131 State St., Portland
Cook, Edward M., Jr., 22 Arsenal St., Portland
Crane, Lawrence, 265 Western Promenade, Portland
Cummings, George O., 47 Deering St., Portland
Cummings, George O., Jr.,
Apt. 1, Bldg. J-2, Slocum Hgts., Syracuse, N. Y.

Curtis, Harry L.,	142 High St., Portland	McIntire, Barron F., Jr.,	Yarmouth
Daniels, Donald H.,	73 Deering St., Portland	McLean, E. Allan,	29 Deering St., Portland
Darche, Albert A.,	782 Main St., Westbrook	McManamy, Eugene P.,	39 Deering St., Portland
Davidson, David,	45 Deering St., Portland	Melnick, Jacob,	333 Congress St., Portland
Davidson, Gisela K.,	45 Deering St., Portland	Miller, Thor,	752 Main St., Westbrook
Davies, Lloyd G.,	Fryeburg	Mills, Nathaniel,	Pownal State School, Pownal
Davis, Harry E.,	169 State St., Portland	Monkhouse, William A.,	131 State St., Portland
Derry, G. Hermann, Jr.,	690 Congress St., Portland	Moore, Roland B.,	201 State St., Portland
Dionne, Maurice J.,	36 Cumberland St., Brunswick	Morrison, Alvin A.,	57 Deering St., Portland
Dooley, Francis M.,	53 Deering St., Portland	Moulton, Albert W.,	180 State St., Portland
Dore, Kenneth E.,	Fryeburg	Moulton, Albert W., Jr.,	180 State St., Portland
Dorsey, F. Donald,	52 Deering St., Portland	O'Donnell, Eugene E.,	32 Deering St., Portland
Douphinett, Otis J.,	763 Congress St., Portland	Ottum, Alvin E.,	150 State St., Portland
Drake, Emerson H.,	29 Deering St., Portland	Parker, James M.,	31 Deering St., Portland
Drake, Eugene H.,	58 Deering St., Portland	Peaslee, C. Capen, Jr.,	339 Woodford St., Portland
Dunham, Carl E.,	201 State St., Portland	Penta, Walter E.,	316 Woodford St., Portland
Dyhrberg, Norman E.,	331 Main St., Cumberland Mills	Pogue, Jackson S.,	529 Gilmore Ave., Trafford, Pa.
Egane, Francis A.,	312 Congress St., Portland	Polisner, Saul R.,	188 State St., Portland
Ferguson, Franklin F.,	22 Arsenal St., Portland	Porter, Joseph E.,	22 Arsenal St., Portland
Finks, Henry B.,	73 Deering St., Portland	Richardson, C. Earle,	3 Cumberland St., Brunswick
Fish, Nicholas,	38 Deering St., Portland	Robinson, Carl M.,	31 Deering St., Portland
Foster, Thomas A.,	131 State St., Portland	Rowe, Daniel M.,	306 Congress St., Portland
Fox, Francis H.,	83 West St., Portland	Russell, Walter,	22 Arsenal St., Portland
Fox, S. Frank,	173 State St., Portland	Santoro, Domenico A.,	756 Congress St., Portland
Freeman, William E.,	107 Main St., Yarmouth	Sapiro, Howard M.,	175 State St., Portland
Geer, Charles R.,	690 Congress St., Portland	Schwartz, Carol,	38 Deering St., Portland
Geer, George I., Jr.,	690 Congress St., Portland	Schaeffer, John H.,	22 Arsenal St., Portland
Getchell, Ralph A.,	690 Congress St., Portland	Scolten, Adrian H.,	32 Deering St., Portland
Geyerhahn, George,	47 Deering St., Portland	Shanahan, William H.,	1231 Forest Ave., Portland
Glassmire, Charles R.,	58 Deering St., Portland	Skillin, Charles E.,	131 State St., Portland
Goduti, Richard J.,	704 Congress St., Portland	Smith, Frank A.,	343 Main St., Westbrook
Good, Philip G.,	38 Deering St., Portland	Sowles, Horace K.,	131 State St., Portland
Gordon, Charles H.,	46 Deering St., Portland	Spencer, Jack,	31 Deering St., Portland
Gould, Arthur L.,	Freeport	Stevens, Theodore M.,	148 State St., Portland
Greco, Edward A.,	12 Pine St., Portland	Sturgis, Karl B.,	Pownal State School, Pownal
Hall, Earl S.,	696 Congress St., Portland	Tabachnick, Henry M.,	110 Park Ave., Portland
Ham, Joseph G.,	690 Congress St., Portland	Thaxter, Langdon T.,	31 Deering St., Portland
Hamel, John R.,	50 Deering St., Portland	Thompson, Philip P., Jr.,	704 Congress St., Portland
Hanley, Daniel F.,	Brunswick	Tougas, Raymond A.,	Brunswick
Hanlon, Francis W.,	46 Deering St., Portland	Upham, Roscoe C.,	15 Crescent St., Biddeford
Hanson, Henry W., Jr.,	Cumberland Center	Ward, John V.,	131 State St., Portland
Hawkes, Richard S.,	47 Deering St., Portland	Webber, Isaac M.,	29 Deering St., Portland
Heifetz, Ralph,	173 State St., Portland	Webber, M. Carroll,	735 Stevens Ave., Portland
Herrick, Stanley E.,	12 Deering St., Portland	Weeks, DeForest,	158 Pleasant Ave., Portland
Holt, C. Lawrence,	29 Deering St., Portland	Wellington, J. Foster,	655 Congress St., Portland
Holt, William,	14 Deering St., Portland	Whittier, Alice A. S.,	143 Neal St., Portland
Hudson, Henry A.,	Bridgton	Wight, Donald G.,	30 Mitchell Rd., South Portland
Huntress, Roderick L.,	10 Congress Sq., Portland	Williams, Ralph E.,	Freeport
Ives, Howard R., Jr.,	31 Deering St., Portland	Woodman, Arthur B.,	Falmouth Foreside
Jackson, Calvin F.,	State Rd., Falmouth Foreside	Zolov, Benjamin,	296 Congress St., Portland
Johnson, Albert C.,	45 Deering St., Portland		
Johnson, Henry P.,	32 Deering St., Portland		
Johnson, Oscar R.,	18 Deering St., Portland		
Kupelian, Nessib S.,	Pownal State School, Pownal		
Lamb, Henry W.,	77 Ocean Ave., Portland		
Lappin, John J.,	171 State St., Portland		
Laughlin, K. Alexander,	201 State St., Portland		
Leighton, Adam P.,	192 State St., Portland		
Leighton, Wilbur F.,	192 State St., Portland		
Libby, Harold E.,	310 Main St., Westbrook		
Lincoln, John R.,	22 Arsenal St., Portland		
Loewenstein, George,	Great Chebeague Island		
Logan, G. E. C.,	144 State St., Portland		
Lombard, Reginald T.,	793 Main St., South Portland		
Lorimer, Robert V.,	150 State St., Portland		
Love, Robert B.,	Gorham		
Lovely, David K.,	73 Deering St., Portland		
Macdonald, H. Eugene,	690 Congress St., Portland		
MacVane, William L., Jr.,	211 State St., Portland		
Maier, Paul,	723 Congress St., Portland		
Maltby, George L.,	203 State St., Portland		
Marshall, Donald F.,	142 High St., Portland		
Marston, Paul C.,	Kezar Falls		
Martin, Ralf,	58 Deering St., Portland		
Martin, Thomas A.,	203 State St., Portland		
McAdams, William R.,	723 Congress St., Portland		
McCann, Eugene C.,	49 Deering St., Portland		
McCrum, Philip H.,	188 State St., Portland		
McDermott, Leo J.,	151 Vaughan St., Portland		
McFarland, Edward A.,	Brunswick		

HONORARY MEMBERS

Bradford, William H.,	133 Coyle St., Portland
Brock, Henry H.,	Alfred
Emery, Harry S.,	721 Stevens Ave., Portland
Foster, Albert D.,	Bay Shore Drive, Falmouth Foreside
Haskell, Alfred W.,	142 High St., Portland
Howard, Harvey,	Freeport
Sawyer, Samuel G.,	658 Watertown St., Newtonville, Mass.
Stetson, Elbridge G. A.,	Brunswick
Tetreau, Thomas,	44 Monument Sq., Portland
Tobie, Walter E.,	3 Deering St., Portland
Wheet, Frederick E.,	773 Main St., Westbrook

AFFILIATE MEMBER

Gehring, Edwin W.,	284 Ocean Ave., Portland
--------------------	--------------------------

SENIOR MEMBERS

Barker, Nathaniel B. T.,	Yarmouth
Beach, S. Judd,	704 Congress St., Portland
Brown, Luther A.,	13 Deering St., Portland
Carmichael, Frank E.,	72 Deering St., Portland
Cragin, Charles L.,	831 Congress St., Portland
Ferguson, Franklin A.,	9 Deering St., Portland
Fogg, C. Eugene,	35 Deering St., Portland
Haskell, Harris B.,	9 Bramhall St., Portland
Hills, Louis L.,	816 Main St., Westbrook
Jamieson, James G. S.,	82 High St., Portland
Patterson, James,	614 Highland Ave., South Portland
Webb, Harold R.,	114 Main St., Brunswick

Webster, Fred P.,101 Vaughan St., Portland

Welch, Francis J.,44 Deering St., Portland

Wescott, Clement P.,Windham Hill

MILITARY SERVICE

Smith, Kenneth E.,73 Deering St., Portland

Ventiniglia, William A.,84 Hersey St., Portland

FRANKLIN COUNTY

ACTIVE MEMBERS

Brinkman, Harry,47 Perham St., Farmington

Chase, Philip B.,Anson St., Farmington

Colley, Maynard B.,Wilton

Duffy, Wallace H.,100 Main St., Farmington

Eastman, Charles W.,Livermore Falls

Floyd, Paul E.,2 Middle St., Farmington

Moulton, John H.,Rangeley

Reed, James W.,18 Main St., Farmington

Thompson, Cecil F.,Phillips

Weymouth, Currier C.,83 Main St., Farmington

Zikel, Herbert M.,Wilton

HONORARY MEMBER

White, Verdeil O.,

24 Howard St., Springvale and East Dixfield

AFFILIATE MEMBER

Brown, Elmer J.,81 Main St., Farmington

SENIOR MEMBERS

Floyd, Albion E.,New Sharon

Pratt, George L.,7 Main St., Farmington

HANCOCK COUNTY

ACTIVE MEMBERS

Babcock, Harold S.,Castine

Bliss, Raymond V. N.,Blue Hill

Burgess, Lyman C.,Blue Hill

Cameron, Dwight,Northeast Harbor

Coffin, Ernest L.,Northeast Harbor

Coffin, Silas A.,39 High St., Bar Harbor

Crowe, James H.,121 Main St., Ellsworth

Gray, Philip L.,Blue Hill

Hanson, Joseph H.,Bar Harbor

Joost, Arthur M., Jr.,Bucksport

Knowlton, Charles C.,Ellsworth

Kopfmann, Harry,Deer Isle

Larrabee, Charles F.,Bar Harbor

Millstein, Hyman,Southwest Harbor

Morrison, Charles C., Jr.,Bar Harbor

O'Meara, Edward S.,Ellsworth

Parcher, George,Ellsworth

Russell, Robert F.,Penobscot

Sumner, Charles M.,West Sullivan

Thegan, W. Edward,Bucksport

Torrey, Marcus A.,Ellsworth

Trowbridge, Mason, Jr.,Ellsworth

Weymouth, Raymond E.,194 Main St., Bar Harbor

Wilbur, Herbert T., Jr.,Southwest Harbor

HONORARY MEMBERS

Holt, Hiram A.,Winter Harbor

(Little, Clarence Cook,Bar Harbor)

MILITARY SERVICE

Knickerbocker, Charles H.,Bar Harbor

KENNEBEC COUNTY

ACTIVE MEMBERS

Abbott, Henry W.,116 Main St., Waterville

Bauman, Clair S.,177 Main St., Waterville

Beckerman, Stanley C.,Waterville

Bisson, Napoleon,29 Common St., Waterville

Bourassa, Harvey J.,50 Main St., Waterville

Brann, Henry A.,31 Western Ave., Augusta

Breard, J. Alfred,

Bull, Frank B.,

Cates, Samuel C.,

Champlin, Frederic B.,

Chasse, Richard L.,

Cook, Aaron,

Cordray, David P.,

Cyr, Gerald A.,

Dachslager, Philip,

Dennis, Richard H.,

Dore, Clarence E.,

Dunn, Robert H.,

Elkins, Harry,

Emanuel, Meyer,

Ervin, Edmund N.,

Farrell, Chalmers G.,

Fay, Thomas F.,

Fisher, Samson,

Foote, Edward L.,

Giddings, Paul D.,

Giesen, Joseph H.,

Gingras, Adolphe J.,

Goodof, Irving I.,

Goodrich, Blynn O.,

Gould, George I.,

Guite, L. Armand,

Harlow, Edwin W.,

Herring, Leon D.,

Hill, Frederick T.,

Hill, Howard F.,

Hirschberger, Celia,

Hurd, Allan C.,

Jackson, Elmer H.,

Kagan, Samuel H.,

Lambert, Greenlief H.,

15 Summer St., Waterville

72 Church St., Gardiner

East Vassalboro

216 Main St., Waterville

173 Main St., Waterville

44 Main St., Waterville

31 Western Ave., Augusta

50 Main St., Waterville

269½ Water St., Augusta

33 College Ave., Waterville

65 Temple St., Waterville

Veterans' Adm., Togus

State Hosp., Augusta

Veterans' Adm., Togus

33 College Ave., Waterville

2 Church St., Gardiner

284 Water St., Augusta

Oakland

Veterans' Adm., Togus

31 Western Ave., Augusta

35 College Ave., Waterville

99 Water St., Augusta

Thayer Hosp., Waterville

165 Main St., Waterville

76 Main St., Richmond

27 Main St., Waterville

177 Main St., Waterville

Winthrop

177 Main St., Waterville

33 College Ave., Waterville

44 Main St., Waterville

72 Church St., Gardiner

Depositors Trust Bldg., Augusta

283 Water St., Augusta

112 So. Dianthus St., Manhattan Beach, Calif.

Langer, Ella,

Lepore, Anthony E.,

Lubell, Moses F.,

Marquardt, Matthias,

Mathews, Hugh J., Jr.,

McKay, Roland L.,

McLaughlin, Clarence R.,

McLaughlin, Ivan E.,

McQuillan, Arthur H.,

McWethy, Wilson H.,

Metzgar, John G.,

Michaud, Joseph H. C.,

Milliken, Howard H.,

Moore, Arnold W.,

Moore, Valentine J.,

Morrell, Arch H.,

Murphy, Norman B.,

Nelson, John A.,

Newman, Benjamin,

1204 Westwood Ave., Charleston 2, W. Va.

2 Silver St., Waterville

177 Main St., Waterville

177 Main St., Waterville

27 Main St., Waterville

177 Main St., Waterville

177 Main St., Waterville

State House, Augusta

48 Green St., Augusta

48 Green St., Augusta

101 Main St., Waterville

101 Main St., Waterville

33 College Ave., Waterville

120 Main St., Winthrop

Veterans' Adm., Togus

173 Main St., Waterville

284 Water St., Augusta

122 Main St., Winthrop

P. O. Box 275, Togus

State Hosp., Augusta

31 Grove St., Augusta

6 Maine Ave., Gardiner

Veterans' Adm., Togus

3113 Glendale Ave., Baltimore 17, Md.

50 Main St., Waterville

Tyson, Forrest C., R. F. D. 5, Augusta
 Valentine, John B., 25 Patterson St., Augusta
 Wilson, Robert W., Veterans' Adm., Togus
 Young, William J., 92 Wood St., Lewiston

HONORARY MEMBERS

Coombs, George A., 283 Water St., Augusta
 Milliken, Howard A., Hallowell
 Towne, John G., 135 Main St., Waterville
 Turner, Oliver W., P. O. Box 481, Boothbay Harbor

SENIOR MEMBERS

Carter, Frederick R., 43 Sylvan Rd., South Portland
 Gousse, William J., 76 Main St., Fairfield
 Mitchell, Roscoe L., 97 Water St., Hallowell
 Newcomb, Charles H., Clinton
 Odiorne, Joseph E., Coopers Mills
 Risley, Edward H., 27 College Ave., Waterville
 Stubbs, Richard H., 133 State St., Augusta
 Williams, Edmund P., Oakland

MILITARY SERVICE

Gingras, Napoleon J., 105 Water St., Augusta

KNOX COUNTY**ACTIVE MEMBERS**

Allen, Robert L., 37 Spring St., Rockland
 Apollonio, Howard L., 7 Talbot Ave., Rockland
 Brown, Donald H., 13 Maple St., Rockland
 Brown, Freeman F., 5 Beech St., Rockland
 Brown, Freeman F., Jr., 446 Hartford Ave., Wethersfield, Conn.
 Campbell, Fred G., Warren
 Dennison, Frederick C., Main St., Thomaston
 Earle, Ralph P., Vinalhaven
 Green, Archibald F., 60 Elm St., Camden
 Hinckley, Harry F., Jr., Dark Harbor
 Jameson, C. Harold, 463 Main St., Rockland
 Jones, Paul A., Union
 Kibbe, Frank W., 37 Spring St., Rockland
 Lawry, Oram R., 96 Limerock St., Rockland
 Luce, Barbara G., 43 Park St., Rockland
 Mann, David V., 47 Chestnut St., Camden
 Miller, John F., 81 Park St., Rockland
 Millington, Paul A., 44 Mountain St., Camden
 Platt, Anna, Friendship
 (Winter address: Route 1, Box 246, Largo, Florida)
 Soule, Gilmore W., 463 Main St., Rockland
 Tounge, Harry G., 12 Union St., Camden
 Wasgatt, Wesley N., 41 Talbot Ave., Rockland
 Waterman, Richard, Friendship
 Weisman, Herman J., 76 Limerock St., Rockland
 Worthing, Verla, Thomaston

HONORARY MEMBER

Hall, Walter D., 407 Main St., Rockland

SENIOR MEMBER

North, Charles D., 38 Union St., Rockland

MILITARY SERVICE

Bearor, Robert H., North Haven

LINCOLN-SAGadahoc COUNTIES**ACTIVE MEMBERS**

Barrows, Harris C., 5 Oak St., Boothbay Harbor
 Belknap, Robert W., Damariscotta
 Belknap, Samuel L., Damariscotta
 Dougherty, John F., 112 Front St., Bath
 Fuller, Edwin M., 1740 Barnbridge St., Philadelphia 46, Pa.
 Goodrich, John P., Boothbay Harbor
 Gregory, Philip O., Boothbay Harbor
 Hamilton, Virginia C., 900 Washington St., Bath
 Hawkins, Donald B., 260 SA Green St., Harrisburg, Pa.
 Lenfest, Stanley R., Waldoboro
 Nichols, Arthur A., Wiscasset

Parsons, Neil L., Damariscotta
 Powell, Ralph C., New Harbor
 Smith, Jacob, 118 Front St., Bath
 Smith, Joseph L., 118 Front St., Bath
 Stetson, Rufus E., Damariscotta
 Stott, Ardenne A., 117 Front St., Bath
 Westermeyer, Marion W., Washington St., Bath
 Wilson, Harry M., Middle St., Bath
 Winchenbach, Francis A., 910 Washington St., Bath

HONORARY MEMBER

Pratt, Edwin F., 4 Pleasant St., Richmond

AFFILIATE MEMBERS

Dash, George E., Boothbay Harbor
 Desjardins, A. W., South Bristol

SENIOR MEMBERS

Bousfield, Cyril E., Woolwich
 Day, DeForest S., Wiscasset
 Kershner, Warren E., 119 Front St., Bath
 Morin, Harry F., 72 Front St., Bath
 Sylvester, Philip H., Bristol Rd., Damariscotta

MILITARY SERVICE

Dalrymple, Sidney C., 239 Walnut St., Brookline, Mass.

OXFORD COUNTY**ACTIVE MEMBERS**

Adams, Lester, Western Maine San., Greenwood Mt.
 Aucoin, Pierre B., 77 Rumford Ave., Rumford
 Boynton, Willard H., Bethel
 Broughton, David S., 18 Hartford Ave., Rumford
 Defoe, Garfield G., Dixfield
 Dixon, Walter G., 16 Deering St., Norway
 Elsmore, Dexter E., Dixfield
 Greene, John A., 96 Congress St., Rumford
 Howard, Henry M., 105 Franklin St., Rumford
 Hubbard, Roswell E., Waterford
 Kay, Edwin, 31 Frye St., Lewiston
 MacDougall, James A., 303 Penobscot St., Rumford
 McCormack, Roland L., 245 Main St., Norway
 Moore, Beryl M., Oxford
 Nangle, Thomas P., West Paris
 Nelson, Chesley W., 121 Main St., Norway
 Noyes, Harriett L., 114 Congress St., Rumford
 Oestrich, Alfred, 20 Congress St., Rumford
 Reeves, Edward L., 38 Market Sq., South Paris
 Reeves, Helen M., 38 Market Sq., South Paris
 Rowe, Linwood M., 250 Penobscot St., Rumford
 Royal, Albert P., Jr., 82 Maine Ave., Rumford
 Stanwood, Harold W., 5 Franklin St., Rumford

HONORARY MEMBER

McCarty, Eugene M., 82 Maine Ave., Rumford

SENIOR MEMBERS

Pearson, Henry, Brownfield Center (Conway, N. H.)
 Stewart, Delbert M., 15 Main St., South Paris
 Tibbetts, Raymond R., Bethel

PENOBSCOT COUNTY**ACTIVE MEMBERS**

Adams, Asa C., Main St., Orono
 Adams, Winford C., 66 Washington St., Brewer
 Albro, Ward A., 47 Broadway, Bangor
 Ames, Forrest B., 255 Hammond St., Bangor
 Anderson, Karl V., 174 Cedar St., Bangor
 Blaisdell, Carl E., 42 Broadway, Bangor
 Blaisdell, William B., 11 Ohio St., Bangor
 Bridges, Donald E., 263 State St., Bangor
 Brown, Eugene E., 316 State St., Bangor
 Brown, Lloyd, 316 State St., Bangor
 Burke, Paul W., 5 High St., Newport
 Butler, Harry, 77 Broadway, Bangor
 Butterfield, Wilfred I., 67 Main St., Lincoln
 Clough, Dexter J., 2nd, 224 State St., Bangor
 Comeau, Wilfrid J., 1 Fern St., Bangor

Cornell, Robert C., Orono
 Coulton, Donald, 326 State St., Bangor
 Curran, Edward L., 159 State St., Bangor
 Dunham, Rand A., East Millinocket
 Dwyer, Clement S., 47 Broadway, Bangor
 Emerson, W. Merritt, 131 State St., Bangor
 Emery, Clarence, Jr., 92 Essex St., Bangor
 Emery, Frederick C., 3 Third St., Bangor
 Fellows, Albert W., 52 Ohio St., Bangor
 Hall, Walter L. H., 50 No. 4th St., Old Town
 Higgins, George I., Newport
 Hill, Allison K., 113 Somerset St., Bangor
 Horton, George H., 247 Hammond St., Bangor
 Houlihan, John S., 209 State St., Bangor
 Inglee, Frances L., 384 Market St., Rockland, Mass.
 Irwin, Carl W., 316 State St., Bangor
 Kellogg, Robert O., 316 State St., Bangor
 Lezberg, Joseph, 209 State St., Bangor
 Liebermann, Arthur R., 209 State St., Bangor
 Lippmann, Werner O., State Hosp., Bangor
 Macdonald, Donald F., 263 State St., Bangor
 Manter, Wilbur B., 1 Fern St., Bangor
 McNamara, Wesley C., 8 Lee St., Lincoln
 McNeil, Harry D., 58 Hamond St., Bangor
 McQuoid, Robert M., 39 Columbia St., Bangor
 Memmelaar, Joseph E., 54 Forest Ave., Bangor
 Merrill, Urban H., 13 Water St., Newport
 Miragliuolo, Leonard G., 130 Hammond St., Bangor
 Morris, Lloyd E., Jr., 489 State St., Bangor
 Moulton, Manning C., 5 Grove St., Bangor
 Munce, Richard T., 262 State St., Bangor
 Osler, Jay K., 5 Grove St., Bangor
 Pearson, John J., Jr., Old Town
 Pooler, Harold A., State Hosp., Bangor
 Pressey, Harold E., 23 Hammond St., Bangor
 Purinton, William A., 15 Ohio St., Bangor
 Ridlon, Magnus F., 99 Broadway, Bangor
 Ruhlin, Carl W., 205 French St., Bangor
 Scribner, Herbert C., 259 Union St., Bangor
 Sewall, Elmer M., Orono
 Shapero, Benjamin L., 73 Broadway, Bangor
 Shubert, Alice J., 127 Leighton St., Bangor
 Shurnan, Hans, 381 Main St., Dexter
 Silsby, Samuel S., 11 Ohio St., Bangor
 Skinner, Peter S., 112 Ohio St., Bangor
 Smith, Hugh A., 768 Union St., Bangor
 Stebbins, Arthur P., 209 State St., Bangor
 Strout, Arthur C., Dexter
 Strout, Warren G., 44 Main St., Pittsfield
 Stull, Joseph B., 489 State St., Bangor
 Sullivan, John R., 59 Spruce St., Millinocket
 Taylor, Herbert L., Dexter
 Thomas, Philip B., 209 French St., Bangor
 Todd, Albert C., Brewer
 Vickers, Martyn A., 268 State St., Bangor
 Wadsworth, Richard C., 489 State St., Bangor
 Wagner, Samuel L., Winterport
 Weatherbee, George B., Hampden Highlands
 Weisz, Hans, 164 Main St., Lincoln
 White, William J., Howland
 Whitney, Byron V., 156 State St., Bangor
 Whitworth, John E., 116 Hammond St., Bangor
 Woodcock, Allan, 35 Second St., Bangor

HONORARY MEMBERS

Lethicq, J. Albert, 115 Wilson St., Brewer
 Mansfield, Blanche M., 297-14th St., Bangor
 Mason, Luther S., 109 State St., Bangor
 Purinton, Watson S., 15 Ohio St., Bangor
 Small, Amos E., 31 Central St., Bangor
 Thompson, John B., 9 Central St., Bangor
 Weymouth, Frank D., 46 No. Main St., Brewer

AFFILIATE MEMBERS

Knowlton, Henry C., 194 French St., Bangor
 Smith, LeRoy S., Winterport

SENIOR MEMBERS

Devan, Thomas A., 10245-47th Ave., Corona, L. I., N. Y.
 Hedin, Carl J., Penobscot Terrace, Brewer
 Maddan, Martin C., 165 Center St., Old Town

MILITARY SERVICE

Clough, Herbert T., Jr.,
 101st Med. Corps., Dow Air Force Base, Bangor
 Damazo, Frank S., Corinna
 Shubert, William M., 127 Leighton St., Bangor

PISCATAQUIS COUNTY

ACTIVE MEMBERS

Bradbury, Francis W., Dover-Foxcroft
 Bundy, Harvey C., Milo
 Carde, Albert M., 33 Elm St., Milo
 Curtis, John B., 10 High St., Milo
 Howard, George C., Guilford
 Nickerson, Norman H., Greenville
 Stanhope, Charles N., Dover-Foxcroft
 Stitham, Linus J., 50 Main St., Dover-Foxcroft
 Stuart, Ralph C., Guilford

HONORARY MEMBER

Crosby, Nathaniel H., Milo

SENIOR MEMBERS

MacDougal, Wilbur E., Dover-Foxcroft
 Pritham, Fred J., Greenville Junction

SOMERSET COUNTY

ACTIVE MEMBERS

Amrein, H. Carl, 29 Weston Ave., Madison
 Ball, Franklin P., Bingham
 Bernard, Albert J., Jr., 198 Madison Ave., Skowhegan
 Briggs, Paul R., Hartland
 Friend, John, North Anson
 Greenlaw, William A., Fairfield
 Grow, William B., Central Maine San., Fairfield
 Humphreys, Ernest D., 91 Main St., Pittsfield
 Hutchins, Eugene L., North New Portland
 Laney, Richard P., 50 Water St., Skowhegan
 Lord, Edwin M., 198 Madison Ave., Skowhegan
 Lord, Maurice E., 220 Water St., Skowhegan
 Norris, Lester F., 36 Maple St., Madison
 Philbrick, Maurice S., 292 Water St., Skowhegan
 Reed, Howard L., 235 Madison Ave., Skowhegan
 Smith, Henry F., Jackman Station
 Stinchfield, Allan J., 56 Hospital St., Augusta
 Strickland, Marion S., Canaan
 Sullivan, George E., Main St., Bingham
 Turner, Hatland G., R. F. D. No. 2, Norridgewock
 Young, George E., 159 Water St., Skowhegan

HONORARY MEMBERS

Stinchfield, Walter S., Court St., Skowhegan

SENIOR MEMBER

Marston, Henry E., North Anson

MILITARY SERVICE

Jordon, Walter E., Jr.,
 Bayview, Indian Mound Beach, Buzzard Bay, Mass.

WALDO COUNTY

ACTIVE MEMBERS

Caswell, John A., 7 Cedar St., Belfast
 Holmes, George W., Belfast
 Read, Seth H., 15 Church St., Belfast
 Small, Foster C., 169 High St., Belfast
 Stein, Abraham O., 132 Main St., Belfast
 Stein, Ernest W., Stockton Springs
 Stevens, Carl H., 18 Franklin St., Belfast
 Temple, George L., 18 Franklin St., Belfast
 Torrey, Raymond L., E. Main St., Searsport

HONORARY MEMBERS

Stevens, Eugene L., 38 Church St., Belfast
 Tapley, Eugene D., 17 High St., Belfast

WASHINGTON COUNTY

ACTIVE MEMBERS

Armstrong, Charles M.,	Robbinston
Bates, James C.,	Eastport
Bennett, DaCosta F.,	4 Main St., Lubec
Brownrigg, Leslie W.,	St. Stephen, N. B.
Capron, Charles W., Jr.,	48 Washington St., Eastport
Cobb, Norman E.,	Moreland, Oklahoma
Jacob, Donald R.,	Princeton
Kazutow, John,	Machias
Larson, Karl V.,	East Machias
Larson, Oscar F.,	Machias
MacBride, Robert G.,	Lubec
Metcalf, John T.,	Calais
Mitchell, Hazen C.,	Calais
Mundie, Perley J.,	Calais
Sears, Harold G.,	Woodland
Webber, Samuel R.,	Calais
Young, H. John,	Jonesport

HONORARY MEMBER

Gilbert, Walter J.,	Calais
---------------------	--------

SENIOR MEMBER

Crane, James W.,	Woodland
------------------	----------

YORK COUNTY

ACTIVE MEMBERS

Bacon, Melvin,	206 Main St., Sanford
Bancroft, George R., Jr.,	Kennebunkport
Barden, Frank W.,	Saco-Lowell Shops, Biddeford
Belmont, Ralph S.,	207 Main St., Sanford
Bonanno, Anthony M.,	179 Main St., Berwick
Bunker, Willard H.,	York Harbor
Charest, Leandre R.,	260 Main St., Biddeford
Cobb, Stephen A.,	28 Winter St., Sanford
Cunco, Kenneth J.,	31 Summer St., Kennebunk
Davis, Ansel S.,	Springvale
Dennett, Carl G.,	Saco
Dionne, William E.,	21 Main St., Springvale
Downing, J. Robert,	37 Storer St., Kennebunk
Drummond, S. Dunton,	Buxton
Eppinger, Ernest,	West Buxton

Fortier, Andre P.,	260 Main St., Biddeford
Haas, Carl M.,	31 Adam St., Biddeford
Hill, Paul S., Jr.,	176 Main St., Saco
Holland, Edward W.,	28 Winter St., Sanford
Houle, Marcel P.,	13 Bacon St., Biddeford
Kinghorn, Charles W.,	4 Wentworth St., Kittery
LaFond, Robert S.,	258 Main St., Saco
LaRochelle, Joseph R.,	42 Bacon St., Biddeford
Lengyel, Charles,	9 Alfred St., Biddeford
Lesieur, Louis C.,	66 Beach St., Saco
Lincourt, Armand S.,	47 Allen St., Sanford
Macdonald, James H.,	103 Main St., Kennebunk
Magosi, Alexander W.,	York Village
Mahaney, William F.,	388 Main St., Saco
Mazzacane, Walter D.,	Old Orchard
Morse, Waldron L.,	11½ Main St., Springvale
Moulton, Marion A. K.,	West Newfield
Murphy, John J.,	South Berwick
Myer, John C.,	2 School St., Sanford
Nemon, Leon,	243 State St., Portland
O'Sullivan, William B.,	331 Main St., Saco
Patane, Joseph M.,	21 Washington Ave., Old Orchard
Perrault, Oscar W.,	30 South St., Biddeford
Richards, Carl E.,	28 Winter St., Sanford
Ross, H. Danforth,	28 Winter St., Sanford
Ross, Maurice,	372 Main St., Saco
Roussin, William T.,	48 Bacon St., Biddeford
Smith, Gerald R.,	Ogunquit
Taylor, Paul E.,	9 Wentworth St., Kittery
Tower, Elmer M.,	Ogunquit
Vachon, Robert D.,	28 Winter St., Sanford
Webber, Edward P.,	York Harbor
Xaphes, Chrysaphes J.,	154 Graham St., Biddeford

HONORARY MEMBERS

Head, Owen B.,	6 Washington St., Sanford
Shapleigh, Edward E.,	Kittery
Small, Fitz E.,	260 Main St., Biddeford
Stimpson, Arthur J.,	Kennebunk

SENIOR MEMBERS

Kendall, Clarence F.,	68 Birch St., Biddeford
Stickney, Laura B.,	Saco
Whitney, Ray L.,	Cape Porpoise
Wiley, Arthur G.,	Bar Mills

An Alphabetical List of the Members of the Maine Medical Association*

* The figures in parentheses refer to County Societies as follows: (1) Androscoggin, (2) Aroostook, (3) Cumberland, (4) Franklin, (5) Hancock, (6) Kennebec, (7) Knox, (8) Lincoln-Sagadahoc, (9) Oxford, (10) Penobscot, (11) Piscataquis, (12) Somerset, (13) Waldo, (14) Washington, (15) York.

A

Abbott, Henry W.,	116 Main St., Waterville (6)
Adams, Asa C.,	Main St., Orono (10)
Adams, Lester,	Western Maine San., Greenwood Mt. (9)
Adams, Winford C.,	66 Washington St., Brewer (10)
Agan,	22 Arsenal St., Portland (3)
Albert, Armand,	193 Main St., Van Buren (2)
Albert, Joseph L.,	Fort Kent (2)
Albert, Louis N.,	Van Buren (2)
Albro, Ward A.,	47 Broadway, Bangor (10)
Allen, Robert L.,	37 Spring St., Rockland (7)
Ames, Forrest B.,	255 Hammond St., Bangor (10)
Amrein, H. Carl,	29 Weston Ave., Madison (12)
Anderson, Donald L.,	54 Pine St., Lewiston (1)
Anderson, Karl U.,	174 Cedar St., Bangor (10)
Ansell, Harvey B.,	39 Deering St., Portland (3)
Apollonio, Howard L.,	7 Talbot Ave., Rockland (7)
Applin, Hilton H.,	129 Maine St., Brunswick (3)
Aranson, Albert,	73 Deering St., Portland (3)
Archambault, Philip L.,	75 Mill St., Auburn (1)
Armstrong, Charles M.,	Robbinston (14)

B

Asali, Louis A.,	29 Deering St., Portland (3)
Ascher, David S.,	Patten (2)
Asherman, Edward G.,	31 Deering St., Portland (3)
Aucoin, Pierre B.,	77 Rumford Ave., Rumford (9)
Aungst, Melvin R.,	Eagle Lake (2)
Babalian, Leon,	38 Deering St., Portland (3)
Babcock, Harold S.,	Castine (5)
Bachrach, Louis,	Brunswick (3)
Bacon, Melvin,	206 Main St., Sanford (15)
Ball, Franklin P.,	Bingham (12)
Bancroft, George R., Jr.,	Kennebunkport (15)
Barden, Frank W.,	Saco-Lowell Shops, Biddeford (15)
Barker, Nathaniel B. T.,	Yarmouth (3)
Barrows, Harris C.,	5 Oak St., Boothbay Harbor (8)
Bates, James C.,	Eastport (14)
Bauman, Clair S.,	177 Main St., Waterville (6)
Beach, S. Judd,	704 Congress St., Portland (3)
Bearor, Robert H.,	North Haven (7)

Beck, Henry W., Gray (3)
 Beeaker, Vincent H., 85 Wood St., Lewiston (1)
 Beckerman, Stanley C., Waterville (6)
 Beliveau, Bertrand A., 56 Howc St., Lewiston (1)
 Beliveau, Romeo A., 89 Pine St., Lewiston (1)
 Belknap, Robert W., Damariscotta (8)
 Belknap, Samuel L., Damariscotta (8)
 Belmont, Ralph S., 207 Main St., Sanford (15)
 Bennett, DaCosta F., 4 Main St., Lubec (14)
 Bergmann, Jerome W., 131 State St., Portland (3)
 Bernard, Albert J., 198 Madison Ave., Skowhegan (12)
 Bernard, Romeo A., 26 Beacon St., Lewiston (1)
 Berrie, Lloyd H., 2 Main St., Caribou (2)
 Bettle, Ronald A., Brunswick (3)
 Bickmore, Harold V., 723 Congress St., Portland (3)
 Bidwell, Robinson L., 203 State St., Portland (3)
 Bischoffberger, John M., Naples (3)
 Bishop, Lloyd W., 211 Vaughan St., Portland (3)
 Bisson, Napoleon, 29 Common St., Waterville (6)
 Blaisdell, Carl E., 42 Broadway, Bangor (10)
 Blaisdell, Elton R., 12 Deering St., Portland (3)
 Blaisdell, William B., 11 Ohio St., Bangor (10)
 Bliss, Raymond V. N., Blue Hill (5)
 Bluhm, Samuel, St. Mary's Hospital, Lewiston (1)
 Bonanno, Anthony M., 179 Main St., Berwick (15)
 Boone, Storer W., 194 Main St., Presque Isle (2)
 Bourassa, Harvey J., 50 Main St., Waterville (6)
 Bousfield, Cyril E., Woolwich (8)
 Bousquet, Jean J., 91 Bartlett St., Lewiston (1)
 Boynton, Willard H., Bethel (9)
 Bradbury, Francis W., Dover-Foxcroft (11)
 Bradford, William H., 133 Coyle St., Portland (3)
 Bramhall, Theodore C., 49 Deering St., Portland (3)
 Branch, Charles F., 69 Gamage St., Auburn (1)
 Brann, Henry A., 31 Western Ave., Augusta (6)
 Branson, Sidney R., 37 Main St., So. Windham (3)
 Breard, J. Alfred, 15 Summer St., Waterville (6)
 Bridges, Donald E., 263 State St., Bangor (10)
 Briggs, Paul R., Hartland (12)
 Brien, Maurice, 76 Pine St., Lewiston (1)
 Brinkman, Harry, 47 Perham St., Farmington (4)
 Brock, Henry H., Alfred (3)
 Broggi, Frank S., 18 Neal St., Portland (3)
 Broughton, David S., 18 Hartford Ave., Rumford (9)
 Brown, Donald H., 13 Maple St., Rockland (7)
 Brown, Elmer J., 81 Main St., Farmington (4)
 Brown, Eugene E., 316 State St., Bangor (10)
 Brown, Freeman F., 5 Beech St., Rockland (7)
 Brown, Freeman F., Jr., 446 Hartford Ave., Wethersfield, Conn. (7)
 Brown, Lloyd, 316 State St., Bangor (10)
 Brown, Luther A., 13 Deering St., Portland (3)
 Brown, Stephen S., Mars Hill (2)
 Brownrigg, Leslie W., St. Stephen, N. B. (14)
 Buker, Edson B., 80 Goff St., Auburn (1)
 Bull, Frank B., 72 Church St., Gardiner (6)
 Bundy, Harvey C., Milo (11)
 Bunker, Willard H., York Harbor (15)
 Burbank, Bernerd H., 275 Cottage Rd., So. Portland (3)
 Burgess, Lyman C., Blue Hill (5)
 Burke, Paul W., 5 High St., Newport (10)
 Burns, Robert M., 810 Main St., Westbrook (3)
 Burr, Charles G., Houlton (2)
 Burrage, William C., 57 Deering St., Portland (3)
 Busch, John J., 105 Elm St., Mechanic Falls (1)
 Butler, Harry, 77 Broadway, Bangor (10)
 Butterfield, Wilfred L., 67 Main St., Lincoln (10)

C

Call, Ernest V., 118 Pine St., Lewiston (1)
 Cameron, Dwight, Northeast Harbor (5)
 Campbell, Fred G., Warren (7)
 Capron, Charles W., Jr., 48 Washington St., Eastport (14)
 Cappello, Joseph, 144 Spring St., Portland (3)
 Carde, Albert M., 33 Elm St., Milo (11)
 Carmichael, Frank E., 72 Deering St., Portland (3)
 Caron, Frederic J., 174 Bates St., Lewiston (1)
 Carter, Frederick R., 43 Sylvan Rd., So. Portland (6)

Carter, Loren F., Northern Maine San., Presque Isle (2)
 Cartland, John E., 117 Goff St., Auburn (1)
 Casey, William L., 131 State St., Portland (3)
 Caswell, John A., 7 Cedar St., Belfast (13)
 Cates, Samuel C., East Vassalboro (6)
 Cattley, Amy L., 477 Main St., Lewiston (1)
 Center, Ervin A., Steep Falls (3)
 Champlin, Frederic B., 216 Main St., Waterville (6)
 Chapin, Milan A., 237 Turner St., Auburn (1)
 Charest, Leandre R., 260 Main St., Biddeford (15)
 Chase, Philip B., Anson St., Farmington (4)
 Chasse, Richard L., 173 Main St., Waterville (6)
 Chenery, Frederick L., Jr., Monmouth (1)
 Chevalier, Paul R., 355 Pine St., Lewiston (1)
 Christensen, Harry E., 672 Ocean Ave., Portland (3)
 Clapp, Waldo A., 215 College St., Lewiston (1)
 Clapperton, Gilbert, 21 Ryder St., Lewiston (1)
 Clarke, Chester L., 10 Congress Sq., Portland (3)
 Clarkin, Charles P., 131 State St., Portland (3)
 Clough, Dexter J., 2nd, 224 State St., Bangor (10)
 Clough, Herbert T., Jr., 101st Med. Grp., D. A. F. Base, Bangor (10)
 Cobb, Norman E., Moreland, Okla. (14)
 Cobb, Stephen A., 28 Winter St., Sanford (15)
 Coffin, Ernest L., Northeast Harbor (5)
 Coffin, Silas A., 39 High St., Bar Harbor (5)
 Colley, Maynard B., Wilton (4)
 Comeau, Wilfred J., 1 Fern St., Bangor (10)
 Conneen, Lawrence W., 131 State St., Portland (3)
 Cook, Aaron, 44 Main St., Waterville (6)
 Cook, Edward M., Jr., 22 Arsenal St., Portland (3)
 Coombs, George A., 283 Water St., Augusta (6)
 Cordray, David P., 31 Western Ave., Augusta (6)
 Cornell, Robert C., Orono (10)
 Coulton, Donald, 326 State St., Bangor (10)
 Cox, William V., 133 Court St., Auburn (1)
 Cragin, Charles L., 831 Congress St., Portland (3)
 Crane, James W., Woodland (14)
 Crane, Lawrence, 265 Western Promenade, Portland (3)
 Crowe, James H., 121 Main St., Ellsworth (5)
 Crosby, Nathaniel H., Milo (11)
 Cummings, George O., 47 Deering St., Portland (3)
 Cummings, George O., Jr., Apt. 1, Bldg. J-2, Slocum Hgts., Syracuse, N. Y. (3)
 Cuneo, Kenneth J., 31 Summer St., Kennebunk (15)
 Curran, Edward L., 159 State St., Bangor (10)
 Curtis, Harry L., 142 High St., Portland (3)
 Curtis, John B., 10 High St., Milo (11)
 Cyr, Gerald R., 50 Main St., Waterville (6)

D

Dachslager, Philip, 269½ Water St., Augusta (6)
 Dalrymple, Sidney C., 239 Walnut St., Brookline, Mass. (8)
 Damazo, Frank S., Corinna (10)
 Damon, Albert H., Limestone (2)
 Daniels, Donald H., 73 Deering St., Portland (3)
 Darche, Albert A., 782 Main St., Westbrook (3)
 Dash, George E., Boothbay Harbor (8)
 Davidson, David, 45 Deering St., Portland (3)
 Davidson, Gisela K., 45 Deering St., Portland (3)
 Davies, Lloyd G., Fryeburg (3)
 Davis, Ansel S., Springvale (15)
 Davis, Harry E., 169 State St., Portland (3)
 Day, DeForest S., Wiscasset (8)
 DeFoe, Garfield G., Dixfield (9)
 Dennett, Carl G., Saco (15)
 Dennis, Richard H., 33 College Ave., Waterville (6)
 Dennison, Frederick C., Main St., Thomaston (7)
 DeSaulniers, George E. D., 106 Chestnut St., Lewiston (1)
 Derry, G. Hermann, Jr., 690 Congress St., Portland (3)
 Desjardins, A. W., So. Bristol (8)
 Devan, Thomas A., 10245—47th Ave., Corona, L. I., N. Y. (10)
 Dionne, Maurice J., 36 Cumberland St., Brunswick (3)
 Dionne, William E., 21 Main St., Springvale (15)
 Dixon, Walter G., 16 Deering St., Norway (9)
 Doble, Eugene H., Presque Isle (2)
 Donahue, Clement L., 22 Main St., Caribou (2)
 Donahue, Gerald H., 5 Station St., Presque Isle (2)

Donovan, Joseph A., Houlton (2)
 Dooley, Francis M., 53 Deering St., Portland (3)
 Dore, Clarence E., 65 Temple St., Waterville (6)
 Dore, Kenneth E., Fryeburg (3)
 Dorsey, F. Donald, 52 Deering St., Portland (3)
 Dougherty, John F., 112 Front St., Bath (8)
 Douphinett, Otis J., 763 Congress St., Portland (3)
 Downing, J. Robert, 37 Storer St., Kennebunk (15)
 Drake, Emerson H., 29 Deering St., Portland (3)
 Drake, Eugene H., 58 Deering St., Portland (3)
 Drummond, S. Dunton, Buxton (15)
 Duffy, Wallace E., 100 Main St., Farmington (4)
 DuMais, Alcide F., 125 College St., Lewiston (1)
 Dunham, Carl E., 201 State St., Portland (3)
 Dunham, Rand A., East Millinocket (10)
 Dunn, Robert H., Veterans' Adm., Togus (6)
 Dwyer, Clement S., 47 Broadway, Bangor (10)
 Dyhrberg, Norman E., 331 Main St., Cumberland Mills (3)

E

Earle, Ralph P., Vinalhaven (7)
 Eastman, Charles W., Livermore Falls (4)
 Ebbett, Penry L. B., Houlton (2)
 Elkins, Harry, State Hosp., Augusta (6)
 Elsemore, Dexter E., Dixfield (9)
 Emanuel, Meyer, Veterans' Adm., Togus (6)
 Emerson, W. Merritt, 131 State St., Bangor (10)
 Emery, Clarence, Jr., 92 Essex St., Bangor (10)
 Emery, Frederick C., 3 Third St., Bangor (10)
 Emery, Harry S., 721 Stevens Ave., Portland (3)
 Eppinger, Ernest, West Buxton (15)
 Ervin, Edmund N., 33 College Ave., Waterville (6)

F

Fagone, Francis A., 312 Congress St., Portland (3)
 Fahey, William J., 17 Frye St., Lewiston (1)
 Farrell, Chalmers G., 2 Church St., Gardiner (6)
 Faucher, Francois J., Grand Isle (2)
 Fay, Thomas F., 284 Water St., Augusta (6)
 Fellows, Albert W., 52 Ohio St., Bangor (10)
 Ferguson, Franklin A., 9 Deering St., Portland (3)
 Ferguson, Franklin F., 22 Arsenal St., Portland (3)
 Finks, Henry B., 73 Deering St., Portland (3)
 Fish, Nicholas, 38 Deering St., Portland (3)
 Fisher, Dean, 300 Main St., Lewiston (1)
 Fisher, Samson, Oakland (6)
 Flanders, Merton N., 344 Main St., Lewiston (1)
 Floyd, Albion E., New Sharon (4)
 Floyd, Paul E., 2 Middle St., Farmington (4)
 Fogg, C. Eugene, 35 Deering St., Portland (3)
 Foote, Edward L., Veterans' Adm., Togus (6)
 Fortier, Andre P., 260 Main St., Biddeford (15)
 Foster, Albert D., Bay Shore Drive, Falmouth Foreside (3)
 Foster, Thomas A., 131 State St., Portland (3)
 Fox, Francis H., 83 West St., Portland (3)
 Fox, S. Frank, 173 State St., Portland (3)
 Freeman, William E., 107 Main St., Yarmouth (3)
 Friend, John W., No. Anson (12)
 Frost, Robert A., 108 Summer St., Auburn (1)
 Fuller, Edwin M., 1740 Barnbridge St., Philadelphia 46, Pa. (8)

G

Gagnon, Bernard H., Houlton (2)
 Gauvreau, Horace L., 82 Pine St., Lewiston (1)
 Geer, Charles R., 690 Congress St., Portland (3)
 Geer, George I., Jr., 690 Congress St., Portland (3)
 Getchell, Ralph A., 690 Congress St., Portland (3)
 Geyerhahn, George, 47 Deering St., Portland (3)
 Giddings, Paul D., 31 Western Ave., Augusta (6)
 Giesen, Joseph H., 35 College Ave., Waterville (6)
 Giguere, Eustache N., 109 Cedar St., Lewiston (1)
 Gilbert, Walter J., Calais (14)
 Gingras, Adolphe J., 99 Water St., Augusta (6)
 Gingras, Napoleon J., 105 Water St., Augusta (6)

Glassmire, Charles R., 58 Deering St., Portland (3)
 Goduti, Richard J., 704 Congress St., Portland (3)
 Goldman, Morris E., 487 Main St., Lewiston (1)
 Good, Philip G., 38 Deering St., Portland (3)
 Goodof, Irving I., Thayer Hosp., Waterville (6)
 Goodrich, Blynn O., 165 Main St., Waterville (6)
 Goodrich, John P., Boothbay Harbor (8)
 Goodwin, Ralph A., 56 Denison St., Auburn (1)
 Goodwin, Ralph A., Jr., 33 Court St., Auburn (1)
 Gordon, Charles H., 46 Deering St., Portland (3)
 Gormley, Eugene G., Houlton (2)
 Gottlieb, Julius, 210 College St., Lewiston (1)
 Gould, Arthur L., Freeport (3)
 Gould, George I., 76 Main St., Richmond (6)
 Gousse, William L., 76 Main St., Fairfield (6)
 Grant, Alton L., Jr., 133 Court St., Auburn (1)
 Graves, Robert A., Fort Fairfield (2)
 Gray, Philip L., Blue Hill (5)
 Greco, Edward A., 12 Pine St., Portland (3)
 Green, Archibald F., 60 Elm St., Camden (7)
 Green, Ross W., 33 Court St., Auburn (1)
 Greene, John A., 96 Congress St., Rumford (9)
 Greene, Merrill S. F., 466 Main St., Lewiston (1)
 Greene, Theodore C., Houlton (2)
 Greenlaw, William A., Fairfield (12)
 Gregory, Frederick L., 16 High St., Caribou (2)
 Gregory, Philip O., Boothbay Harbor (8)
 Griffiths, Eugene B., Presque Isle (2)
 Gross, Leroy C., 19 Goff St., Auburn (1)
 Grow, William B., Cent. Me. San., Fairfield (12)
 Guite, L. Armand, 27 Main St., Waterville (6)

H

Haas, Carl M., 31 Adam St., Biddeford (15)
 Haas, Rudolph, 488 Main St., Lewiston (1)
 Hall, Earl S., 696 Congress St., Portland (3)
 Hall, Walter D., 407 Main St., Rockland (7)
 Hall, Walter L. H., 50 N. 4th St., Old Town (10)
 Ham, Joseph G., 690 Congress St., Portland (3)
 Hamel, John R., 50 Deering St., Portland (3)
 Hamilton, Virginia C., 900 Washington St., Bath (8)
 Hanley, Daniel F., Brunswick (3)
 Hanlon, Francis W., 46 Deering St., Portland (3)
 Hanson, Henry W., Jr., Cumberland Center (3)
 Hanson, Joseph H., Bar Harbor (5)
 Harkins, Michael J., 437 Main St., Lewiston (1)
 Harlow, Edwin W., 177 Main St., Waterville (6)
 Harvey, Thomas G., 164 Main St., Ft. Fairfield (2)
 Haskell, Alfred W., 142 High St., Portland (3)
 Haskell, Harris B., 9 Bramhall St., Portland (3)
 Hawkes, Richard S., 47 Deering St., Portland (3)
 Hawkins, Donald B., 260 SA Green St., Harrisburg, Pa. (8)
 Hayden, Louis B., Livermore Falls (1)
 Head, Owen B., 6 Washington St., Sanford (15)
 Hedin, Carl J., Penobscot Terrace, Brewer (10)
 Heifetz, Ralph A., 173 State St., Portland (3)
 Herrick, Stanley, 12 Deering St., Portland (3)
 Herring, Leon D., Winthrop (6)
 Higgins, Everett C., 149 College St., Lewiston (1)
 Higgins, George I., Newport (10)
 Hill, Allison K., 113 Somerset St., Bangor (10)
 Hill, Frederick T., 177 Main St., Waterville (6)
 Hill, Howard F., 33 College Ave., Waterville (6)
 Hill, Paul S., Jr., 176 Main St., Saco (15)
 Hills, Louis L., 816 Main St., Westbrook (3)
 Hinckley, Harry F., Jr., Dark Harbor (7)
 Hirschberger, Celia, 44 Main St., Waterville (6)
 Hirshler, Max, 85 Pine St., Lewiston (1)
 Hogan, Chester F., Houlton (2)
 Holland, Edward W., 28 Winter St., Sanford (15)
 Holmes, George W., Belfast (13)
 Holt, C. Lawrence, 29 Deering St., Portland (3)
 Holt, Hiram A., Winter Harbor (5)
 Holt, William, 14 Deering St., Portland (3)
 Horton, George H., 247 Hammond St., Bangor (10)
 Houle, Marcel P., 13 Bacon St., Biddeford (15)
 Houlihan, John S., 209 State St., Bangor (10)
 Howard, George C., Guilford (11)

Howard, Harvey, Freeport (3)
 Howard, Henry M., 105 Franklin St., Rumford (9)
 Hubbard, Roswell E., Waterford (9)
 Hudson, Henry A., Bridgton (3)
 Huggard, Leslie H., Limestone (2)
 Humphreys, Ernest D., 91 Main St., Pittsfield (12)
 Huntress, Roderick L., 10 Congress Sq., Portland (3)
 Hurd, Allan C., 72 Church St., Gardiner (6)
 Hutchins, Eugene L., No. New Portland (12)

I

Ingler, Frances L., 384 Market St., Rockland, Mass. (10)
 Irwin, Carl W., 316 State St., Bangor (10)
 Ives, Howard R., Jr., 31 Deering St., Portland (3)

J

Jackson, Calvin F., State Rd., Falmouth Foreside (3)
 Jackson, Elmer H., Depositors Trust Bldg., Augusta (6)
 Jacob, Donald R., Princeton (14)
 James, Chakmakis, 47 Howe St., Lewiston (1)
 James, John A., 112 Summer St., Auburn (1)
 Jameson, C. Harold, 463 Main St., Rockland (7)
 Jamieson, James G. S., 82 High St., Portland (3)
 Johnson, Albert C., 45 Deering St., Portland (3)
 Johnson, Gordon N., Houlton (2)
 Johnson, Henry P., 32 Deering St., Portland (3)
 Johnson, Oscar R., 18 Deering St., Portland (3)
 Jones, Paul A., Union (7)
 Joost, Arthur M., Jr., Bucksport (5)
 Jordon, Walter E., Buzzard Bay, Mass. (12)

K

Kagan, Samuel H., 283 Water St., Augusta (6)
 Kalloch, Herbert F., Fort Fairfield (2)
 Kay, Edwin, 31 Frye St., Lewiston (9)
 Kazutow, John, Machias (14)
 Kellogg, Robert O., 316 State St., Bangor (10)
 Kendall, Clarence F., 68 Birch St., Biddeford (15)
 Kershner, Warren E., 119 Front St., Bath (8)
 Kibbe, Frank W., 37 Spring St., Rockland (7)
 Kimball, Herrick C., Ft. Fairfield (2)
 Kinghorn, Charles W., 4 Wentworth St., Kittery (15)
 Kirk, William V., Eagle Lake (2)
 Knickerbocker, Charles H., Bar Harbor (5)
 Knowlton, Charles C., Ellsworth (5)
 Knowlton, Henry C., 194 French St., Bangor (10)
 Kopfmann, Harry, Deer Isle (5)
 Kupelian, Nessib S., State School, Pownal (3)

L

Labbe, Onil B., Van Buren (2)
 LaFond, Robert S., 258 Main St., Saco (15)
 Lamb, Henry W., 77 Ocean Ave., Portland (3)
 Lambert, Greenlief H., 112 So. Dianthus St., Manhattan Beach, Calif. (6)
 Laney, Richard P., 50 Water St., Skowhegan (12)
 Langer, Ella, State House, Augusta (6)
 LaPorte, Paul C., Edmundston, N. B. (2)
 Lappin, John J., 171 State St., Portland (3)
 LaRochelle, Joseph R., 42 Bacon St., Biddeford (15)
 Larrabee, Charles F., Bar Harbor (5)
 Larrabee, Fay F., Washburn (2)
 Larson, Karl V., East Machias (14)
 Larson, Oscar F., Machias (14)
 Laughlin, K. Alexander, 201 State St., Portland (3)
 Lawry, Oram R., Jr., 96 Limerock St., Rockland (7)
 Leighton, Adam P., 192 State St., Portland (3)
 Leighton, Wilbur F., 192 State St., Portland (3)
 Lemaitre, Paul G., 80 Seventh St., Auburn (1)
 Lenfest, Stanley R., Waldoboro (8)
 Lengyel, Charles, 9 Alfred St., Biddeford (15)
 Lepore, Anthony E., 72 Church St., Gardiner (6)
 Lesieur, Louis C., 66 Beach St., Saco (15)

Lethiecq, J. Albert, 115 Wilson St., Brewer (10)
 Levesque, Romeo J., Frenchville (2)
 Lezberg, Joseph, 209 State St., Bangor (10)
 Libby, Harold E., 310 Main St., Westbrook (3)
 Liebermann, Arthur R., 209 State St., Bangor (10)
 Lincoln, John R., 22 Arsenal St., Portland (3)
 Lincourt, Armand L., 47 Allen St., Sanford (15)
 Lippman, Werner O., State Hosp., Bangor (10)
 Loewenstein, George, Great Chebeague Island (3)
 Logan, G. E. C., 144 State St., Portland (3)
 Lombard, Reginald T., 793 Main St., So. Portland (3)
 Lord, Edwin M., 198 Madison Ave., Skowhegan (12)
 Lord, Maurice E., 220 Water St., Skowhegan (12)
 Lorimer, Robert V., 150 State St., Portland (3)
 Love, Robert B., Gorham (3)
 Lovely, David K., 73 Deering St., Portland (3)
 Lubell, Moses F., 50 Roosevelt Ave., Waterville (6)
 Luce, Barbara, 43 Park St., Rockland (7)
 Lynn, Geraldine, 74 Pierce St., Lewiston (1)

M

MacBride, Robert G., Lubec (14)
 Macdonald, Donald F., 263 State St., Bangor (10)
 Macdonald, H. Eugene, 690 Congress St., Portland (3)
 Macdonald, James H., 103 Main St., Kennebunk (15)
 MacDougall, James A., 303 Penobscot St., Rumford (9)
 MacDougal, Wilbur E., Dover-Foxcroft (11)
 MacVane, William L., Jr., 211 State St., Portland (3)
 Madden, Martin C., 165 Center St., Old Town (10)
 Madigan, John B., Houlton (2)
 Magosci, Alexander W., York Village (15)
 Mahaney, William F., 338 Main St., Saco (15)
 Maier, Paul, 723 Congress St., Portland (3)
 Maltby, George L., 203 State St., Portland (3)
 Mann, David V., 47 Chestnut St., Camden (7)
 Mansfield, Blanche M., 297—14th St., Bangor (10)
 Manter, Wilbur B., 1 Fern St., Bangor (10)
 Marquardt, Matthias, State Hospital, Augusta (6)
 Marshall, Donald F., 142 High St., Portland (3)
 Marston, Henry E., No. Anson (12)
 Marston, Paul C., Kezar Falls (3)
 Martel, Dominique A., 460 Sabattus St., Lewiston (1)
 Martin, Ralf, 58 Deering St., Portland (3)
 Martin, Thomas A., 203 State St., Portland (3)
 Mason, Luther S., 109 State St., Bangor (10)
 Mathews, Hugh J., Jr., Gardiner (6)
 Mazzacane, Walter D., Old Orchard (15)
 Melnick, Jacob, 333 Congress St., Portland (3)
 Memmelaar, Joseph E., 54 Forest Ave., Bangor (10)
 Merrick, John R., 17 So. Main St., Caribou (2)
 Merrill, Urban H., 15 Water St., Newport (10)
 Metcalf, John T., Calais (14)
 Methot, Frank P., 265 Lisbon St., Lewiston (1)
 Metzgar, John G., 175 Water St., Augusta (6)
 Michaud, Joseph H. C., 76 Main St., Waterville (6)
 Miller, Clark F., 778 Minot Ave., Auburn (1)
 Miller, Hudson R., 11 Turner St., Auburn (1)
 Miller, John F., 81 Park St., Rockland (7)
 Miller, Thor, 752 Main St., Westbrook (3)
 Milliken, Howard A., Hallowell (6)
 Milliken, Howard H., 105 Second St., Hallowell (6)
 Millington, Paul A., 44 Mountain St., Camden (7)
 Mills, Nathaniel, Pownal State School, Pownal (3)
 Millstein, Hyman, Southwest Harbor (5)
 Miragliuolo, Leonard G., 130 Hammond St., Bangor (10)
 Mitchell, Hazen C., Calais (14)
 Mitchell, Roscoe L., 97 Water St., Hallowell (6)
 Monkhouse, William A., 131 State St., Portland (3)
 Moore, Arnold W., State Hosp., Augusta (6)
 Moore, Beryl M., Oxford (9)
 Moore, Roland B., 201 State St., Portland (3)
 Moore, Valentine J., Thayer Hosp., Waterville (6)
 Morin, Harry F., 72 Front St., Bath (8)
 Morissette, Russell A., 70 Pine St., Lewiston (1)
 Morrell, Arch H., State House, Augusta (6)
 Morris, Lloyd E., Jr., 489 State St., Bangor (10)
 Morrison, Alvin A., 57 Deering St., Portland (3)
 Morrison, Charles C., Jr., Bar Harbor (5)

Morse, Waldron L., 11½ Main St., Springvale (15)
 Moulton, Albert W., 180 State St., Portland (3)
 Moulton, Albert W., Jr., 180 State St., Portland (3)
 Moulton, John H., Rangeley (4)
 Moulton, Manning C., 5 Grove St., Bangor (10)
 Moulton, Marion A. K., West Newfield (15)
 Munee, Richard T., 262 State St., Bangor (10)
 Mundie, Perley J., Calais (14)
 Murphy, D. Jerome, 126 College St., Lewiston (1)
 Murphy, John J., So. Berwick (15)
 Murphy, Norman B., 31 Western Ave., Augusta (6)
 Myer, John C., 2 School St., Sanford (15)

Mc

McAdams, William R., 723 Congress St., Portland (3)
 McCann, Eugene C., 49 Deering St., Portland (3)
 McCarty, Eugene M., 82 Maine Ave., Rumford (9)
 McCormack, Roland L., 245 Main St., Norway (9)
 McCrum, Philip H., 188 State St., Portland (3)
 McDermott, Leo J., 151 Vaughan St., Portland (3)
 McFarland, Edward A., Brunswick (3)
 McIntire, Barron F., Jr., Yarmouth (3)
 McKay, Roland L., 284 Water St., Augusta (6)
 McLaughlin, Clarence R., 345 Water St., Gardiner (6)
 McLaughlin, Ivan E., 345 Water St., Gardiner (6)
 McLean, E. Allan, 29 Deering St., Portland (3)
 McManamy, Eugene P., 39 Deering St., Portland (3)
 McNamara, Wesley C., 8 Lee St., Lincoln (10)
 McNeil, Harry D., 58 Hammond St., Bangor (10)
 McQuillan, Arthur H., 177 Main St., Waterville (6)
 McQuoid, Robert M., 39 Columbia St., Bangor (10)
 MeWethy, Wilson H., 31 Western Ave., Augusta (6)

N

Nadeau, J. Paul, 91 Pine St., Lewiston (1)
 Nangle, Thomas P., West Paris (9)
 Nelson, Chesley W., 121 Main St., Norway (9)
 Nelson, John A., Veterans' Adm., Togus (6)
 Nemon, Leon, 243 State St., Portland (15)
 Newcomb, Charles H., Clinton (6)
 Newman, Benjamin, 1204 Westwood Ave., Charleton 2, W. Va. (6)
 Niehols, Arthur A., Wiseasset (8)
 Niekerson, Norman H., Greenville (11)
 Norris, Lester F., 36 Maple St., Madison (12)
 North, Charles D., 38 Union St., Rockland (7)
 Noyes, Harriet L., 114 Congress St., Rumford (9)

O

O'Connell, George B., 11 Lisbon St., Lewiston (1)
 Odiorno, Joseph E., Cooper's Mills (6)
 O'Donnell, Eugene E., 32 Deering St., Portland (3)
 Oestrich, Alfred, Rumford (9)
 O'Meara, Edward S., Ellsworth (5)
 Osborne, John R., Houlton (2)
 Osler, Jay K., 5 Grove St., Bangor (10)
 O'Sullivan, William B., 331 Main St., Saco (15)
 Ottum, Alvin E., 150 State St., Portland (3)

P

Page, Rosario A., Sweden St., Caribou (2)
 Pareher, George, Main St., Ellsworth (5)
 Parizo, Harry L., 2 Silver St., Waterville (6)
 Parker, James M., 31 Deering St., Portland (3)
 Parsons, Neil L., Damariseotta (8)
 Patane, Joseph M., 21 Washington Ave., Old Orchard (15)
 Patterson, James, 614 Highland Ave., So. Portland (3)
 Pearson, Henry, Brownfield Center (9)
 Pearson, John J., Jr., Old Town (10)
 Peaslee, Clarence C., 42 Goff St., Auburn (1)
 Peaslee, C. Capen, Jr., 339 Woodford St., Portland (3)
 Penta, Walter E., 316 Woodford St., Portland (3)
 Perrault, Osear W., 30 South St., Biddeford (15)
 Philbrick, Mauriee S., 292 Water St., Skowhegan (12)
 Piper, John O., 177 Main St., Waterville (6)

Platt, Anna, Friendship (7)
 Plummer, Albert W., Lisbon Falls (1)
 Poque, Jackson S., 529 Gilmore Ave., Trafford, Pa. (3)
 Polisner, Saul R., 188 State St., Portland (3)
 Pomerleau, Ovid F., 17 Main St., Waterville (6)
 Pomerleau, Rodolphe J. F., 27 Main St., Waterville (6)
 Pooler, Harold A., State Hosp., Bangor (10)
 Porter, Joseph E., 22 Arsenal St., Portland (3)
 Poulin, James E., 177 Main St., Waterville (6)
 Poulin, J. Emile, 194 Lisbon St., Lewiston (1)
 Powell, Ralph, New Harbor (8)
 Pratt, Edwin F., 14 Pleasant St., Richmond (8)
 Pratt, George L., 7 Main St., Farmington (4)
 Pratt, Harold S., Livermore Falls (1)
 Pratt, Loring W., 177 Main St., Waterville (6)
 Pressey, Harold E., 23 Hammond St., Bangor (10)
 Priest, Maurice A., State House, Augusta (6)
 Pritham, Fred J., Greenville Jct. (11)
 Proctor, Ray A., 3 Teague St., Caribou (2)
 Proctor, Thomas E., Bothbay Harbor (8)
 Provost, Helen C., 48 Green St., Augusta (6)
 Provost, Pierre E., 48 Green St., Augusta (6)
 Purinton, Watson S., 15 Ohio St., Bangor (10)
 Purinton, William A., 15 Ohio St., Bangor (10)

R

Rand, Carleton H., 219 Oak St., Lewiston (1)
 Rand, George H., Livermore Falls (1)
 Randall, Ray N., 19 Sabattus St., Lewiston (1)
 Read, Seth H., 15 Church St., Belfast (13)
 Reed, Howard L., 235 Madison Ave., Skowhegan (12)
 Reed, James W., 18 Main St., Farmington (4)
 Reeves, Edward L., 38 Market Sq., So. Paris (9)
 Reeves, Helene M., 38 Market Sq., So. Paris (9)
 Renwiek, Ward J., 102 Goff St., Auburn (1)
 Reynolds, Arthur P., 181 Main St., Presque Isle (2)
 Reynolds, John F., 101 Main St., Waterville (6)
 Reynolds, Ralph L., 101 Main St., Waterville (6)
 Richards, Carl E., 28 Winter St., Sanford (15)
 Richardson, C. Earle, 3 Cumberland St., Brunswick (3)
 Ridlon, Magnus F., 99 Broadway, Bangor (10)
 Risley, Edward H., 27 College Ave., Waterville (6)
 Robertson, George J., 33 College Ave., Waterville (6)
 Robinson, Carl M., 31 Deering St., Portland (3)
 Roek, Daniel A., 477 Main St., Lewiston (1)
 Ross, H. Danforth, 28 Winter St., Sanford (15)
 Ross, Mauriee, 372 Main St., Saco (15)
 Roussin, William T., 48 Bacon St., Biddeford (15)
 Rowe, Daniel M., 306 Congress St., Portland (3)
 Rowe, Gunther H., 42 Main St., Livermore Falls (1)
 Rowe, Linwood M., 250 Penobscot St., Rumford (9)
 Roy, Leopold O., 54 Pine St., Lewiston (1)
 Royal, Albert P., Jr., 82 Maine Ave., Rumford (9)
 Ruhlin, Carl W., 205 French St., Bangor (10)
 Russell, Blinn W., 98 Pine St., Lewiston (1)
 Russell, Daniel D. F., Leeds (1)
 Russell, Robert F., Penobscot (5)
 Russell, Walter, 22 Arsenal St., Portland (3)

S

Sanders, Stephen W., 120 Main St., Winthrop (6)
 Santoro, Domenico A., 756 Congress St., Portland (3)
 Sapiro, Howard M., 175 State St., Portland (3)
 Savage, Richard L., Fort Kent (2)
 Sawyer, Samuel G., 658 Watertown St., Newtonville, Mass. (3)
 Schaeffer, John, 22 Arsenal St., Portland (3)
 Schmidt, Lorrimer M., Veterans' Adm., Togus (6)
 Schwartz, Carol, 38 Deering St., Portland (3)
 Seolten, Adrian H., 32 Deering St., Portland (3)
 Seribner, Herbert C., 259 Union St., Bangor (10)
 Sears, Harold G., Woodland (14)
 Sewall, Elmer M., Orono (10)
 Sewall, Kenneth W., 173 Main St., Waterville (6)
 Shanahan, William H., 1231 Forest Ave., Portland (3)
 Shapero, Benjamin L., 73 Broadway, Bangor (10)
 Shapleigh, Edward E., Kittery (15)
 Shelton, M. Tieche, 284 Water St., Augusta (6)

Shippec, James N., 122 Main St., Winthrop (6)
 Shubert, Alice J., 127 Leighton St., Bangor (10)
 Shubert, William M., 127 Leighton St., Bangor (10)
 Shurman, Hans, 381 Main St., Dexter (10)
 Silsby, Samuel S., 11 Ohio St., Bangor (10)
 Simpson, Margaret R., P. O. Box 275, Togus (6)
 Sincok, Wiley E., Caribou (2)
 Skillin, Charles E., 131 State St., Portland (3)
 Skinner, Peter S., 112 Ohio St., Bangor (10)
 Sleeper, Francis H., State Hosp., Augusta (6)
 Small, Amos E., 31 Central St., Bangor (10)
 Small, Foster C., 169 High St., Belfast (13)
 Small, Fitz E., 260 Main St., Biddeford (15)
 Small, Harold E., 31 Grove St., Augusta (6)
 Smith, Frank A., 343 Main St., Westbrook (3)
 Smith, Gerald R., Ogunquit (15)
 Smith, Henry F., Jackman Sta. (12)
 Smith, Hugh A., 768 Union St., Bangor (10)
 Smith, Jacob, 118 Front St., Bath (8)
 Smith, Joseph I., 118 Front St., Bath (8)
 Smith, Kenneth E., 73 Deering St., Portland (3)
 Smith, LeRoy H., Winterport (10)
 Somerville, Robert B., 264 Main St., Presque Isle (2)
 Somerville, Wallace B., Mars Hill (2)
 Sommerfeld, Kurt A., 6 Maine Ave., Gardiner (6)
 Soule, Gilmore W., 463 Main St., Rockland (7)
 Southworth, John D., Veterans' Adm., Togus (6)
 Sowles, Horace K., 131 State St., Portland (3)
 Spear, William, 107 Main St., Lisbon Falls (1)
 Spencer, Jack, 31 Deering St., Portland (3)
 Stanhope, Charles N., Dover-Foxcroft (11)
 Stanwood, Harold W., 5 Franklin St., Rumford (9)
 Starks, Pauline G., 376 Main St., Lewiston (1)
 Stebbins, Arthur P., 209 State St., Bangor
 Steele, Charles W., 472 Main St., Lewiston (1)
 Stein, Abraham O., 132 Main St., Belfast (13)
 Stein, Ernest W., Stockton Springs (13)
 Stetson, Elbridge G. A., Brunswick (3)
 Stetson, Rufus E., Damariscotta (8)
 Stevens, Carl H., 18 Franklin St., Belfast (13)
 Stevens, Eugene L., 38 Church St., Belfast (13)
 Stevens, Theodore M., 148 State St., Portland (3)
 Stewart, Delbert M., 15 Main St., So. Paris (9)
 Stickney, Laura B., Saco (15)
 Stimpson, Arthur J., Kennebunk (15)
 Stinchfield, Allan J., 56 Hospital St., Augusta (12)
 Stinchfield, Walter S., Court St., Skowhegan (12)
 Stitham, Linus J., 50 Main St., Dover-Foxcroft (11)
 Stott, Ardenne A., 117 Front St., Bath (8)
 Strickland, Marion S., Canaan (12)
 Strout, Arthur C., Dexter (10)
 Strout, Warren G., 44 Main St., Pittsfield (10)
 Stuart, Ralph C., Guilford (11)
 Stubbs, Richard H., 133 State St., Augusta (6)
 Stull, Joseph B., 489 State St., Bangor (10)
 Sturgis, Karl B., State School, Pownal (3)
 Sullivan, George E., Main St., Bingham (12)
 Sullivan, John R., 59 Spruce St., Millinocket (10)
 Sumner, Charles M., West Sullivan (5)
 Sweatt, Linwood A., 48 Drummond St., Auburn (1)
 Swett, Clyde I., Island Falls (2)
 Sylvester, Philip H., Bristol Rd., Damariscotta (8)

T

Tabachnick, Henry M., 110 Park Ave., Portland (3)
 Tapley, Eugene D., 17 High St., Belfast (13)
 Tashiro, Sabro, 3113 Glendale Ave., Baltimore 17, Md. (6)
 Taylor, Herbert L., Dexter (10)
 Taylor, Paul E., 9 Wentworth St., Kittery (15)
 Temple, George L., 18 Franklin St., Belfast (13)
 Tetreau, Thomas, 44 Monument Sq., Portland (3)
 Thacher, Henry C., 11 Turner St., Auburn (1)
 Thaxter, Langdon T., 31 Deering St., Portland (3)
 Thegan, W. Edward, Bucksport (5)
 Thomas, Camp C., Greene (1)
 Thomas, Philip B., 209 French St., Bangor

Thompson, Cecil F., Phillips (4)
 Thompson, John B., 9 Central St., Bangor (10)
 Thompson, Philip P., Jr., 704 Congress St., Portland (3)
 Tibbetts, Otis B., 33 Court St., Auburn (1)
 Tibbetts, Raymond R., Bethel (9)
 Tobie, Walter E., 3 Deering St., Portland (3)
 Todd, Albert C., Brewer (10)
 Torrey, Marcus A., Ellsworth (5)
 Torrey, Raymond L., Searsport (13)
 Tougas, Raymond A., Brunswick (3)
 Tounge, Harry G., 12 Union St., Camden (7)
 Tousignant, Camille, 111 Pine St., Lewiston (1)
 Toussaint, Leonid G., Fort Kent (2)
 Tower, Elmer M., Ogunquit (15)
 Towne, Charles E., 50 Main St., Waterville (6)
 Towne, John G., 135 Main St., Waterville (6)
 Trowbridge, Mason, Jr., Ellsworth (5)
 Turner, Harland G., R. F. D. 2, Norridgewock (12)
 Turner, Oliver W., P. O. Box 481, Boothbay Harbor (6)
 Twaddle, Gard W., 57 Goff St., Auburn (1)
 Tyson, Forrest C., R. F. D. 5, Augusta (6)

U

Upts, Reynold G. E., 67 Webster St., Lewiston (1)
 Upham, Roscoe C., 15 Crescent St., Biddeford (3)

V

Vachon, Robert D., 28 Winter St., Sanford (15)
 Valentine, John B., 25 Patterson St., Augusta (6)
 Ventimiglia, William A., 84 Hersey St., Portland (3)
 Vickers, Martyn A., 268 State St., Bangor (10)
 Viles, Wallace E., Turner (1)

W

Wadsworth, Richard C., 489 State St., Bangor (10)
 Wagner, Samuel L., Winterport
 Wakefield, H. Paul, 33 Nichols St., Lewiston (1)
 Ward, John V., 131 State St., Portland (3)
 Wasgatt, Wesley N., 41 Talbot Ave., Rockland (7)
 Waterman, Richard, Friendship (7)
 Weatherbee, George B., Hampden Highlands (10)
 Webb, Harold R., 114 Maine St., Brunswick (3)
 Webber, Edward P., York Harbor (15)
 Webber, Isaac M., 29 Deering St., Portland (3)
 Webber, John R., Houlton (2)
 Webber, M. Carroll, 735 Stevens Ave., Portland (3)
 Webber, Samuel R., Calais (14)
 Webber, Wallace E., 297 Main St., Lewiston (1)
 Webster, Fred P., 101 Vaughan St., Portland (3)
 Weeks, DeForest, 158 Pleasant Ave., Portland (3)
 Weisman, Herman J., 76 Limerock St., Rockland (7)
 Weisz, Hans, 164 Main St., Lincoln (10)
 Welch, Francis J., 44 Deering St., Portland (3)
 Wellington, J. Foster, 655 Congress St., Portland (3)
 Wescott, Clement P., Windham Hill (3)
 Westermeyer, Marion W., Washington St., Bath (8)
 Weymouth, Currier C., 83 Main St., Farmington (4)
 Weymouth, Frank D., 46 No. Main St., Brewer (10)
 Weymouth, Raymond E., 194 Main St., Bar Harbor (5)
 Wheat, Frederick E., 773 Main St., Westbrook (3)
 White, Verdel O., Springvale and E. Dixfield (4)
 White, William J., Howland (10)
 Whitney, Byron V., 156 State St., Bangor (10)
 Whitney, Ray L., Cape Porpoise (15)
 Whittier, Alice A. S., 143 Neal St., Portland (3)
 Whitworth, John E., 116 Hammond St., Bangor (10)
 Wight, Donald G., 30 Mitchell Rd., So. Portland (3)
 Wilbur, Herbert T., Jr., Southwest Harbor (5)
 Wiley, Arthur G., Bar Mills (15)
 Williams, Edmund P., Oakland (6)
 Williams, James A., 40 Pleasant St., Mechanic Falls (1)
 Williams, Ralph E., Freeport (3)

Wilson, Harry M., Middle St., Bath (8)
Wilson, Robert W., Veterans' Adm., Togus (6)
Winchenbach, Francis A., 910 Washington St., Bath (8)
Woodcock, Allan, 35 Second St., Bangor (10)
Woodman, Arthur B., Falmouth Foreside (3)
Worthing, Verla, Thomaston (7)

Y

Young, George E., 159 Water St., Skowhegan (12)
Young, H. John, Jonesport (14)
Young, William J., 92 Wood St., Lewiston (6)

X

Xaphes, Chrysaphes J., 154 Graham St., Biddeford (15)

Z

Zikel, Herbert M., Wilton (4)
Zotov, Benjamin, 296 Congress St., Portland (3)

HOSPITAL STAFF MEETINGS
Open to the Profession

CITY	HOSPITAL	DATE
Augusta	Augusta General Hospital	1st Wednesday
Bangor	Eastern Maine General	2nd Tuesday
Bath	Bath Memorial Hospital	1st Tuesday
Belfast	Waldo County	2nd Friday
Biddeford	Webber Hospital	2nd Thursday
Boothbay Harbor	St. Andrew's Hospital	4th Tuesday
Caribou	Cary Memorial	1st Wednesday
Damariscotta	Miles Memorial	2nd Thursday
Farmington	Franklin County Memorial	2nd Monday
Greenville	Charles Dean Hospital	2nd Wednesday
Hartland	Scott Webb Memorial Hospital	1st Wednesday
Lewiston	Central Maine General	2nd Thursday
	St. Mary's General	2nd Monday
Portland	Maine Eye and Ear Infirmary	1st Tuesday
	Maine General	2nd Friday
	Mercy	3rd Thursday
Presque Isle	Presque Isle General	1st and 3rd Tuesdays
Rockland	Knox County General	1st Monday
Rumford	Rumford Community	4th Wednesday
Sanford	Goodall Memorial	2nd Monday
Waterville	Sisters	2nd Tuesday
	Thayer	Every Thursday

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

Reprints of SCIENTIFIC ARTICLES

Page Size 8 x 11 Minimum Order 100

Type forms of Scientific Articles are kept for two weeks after publication of Journal.

If interested in obtaining reprints communicate with

MARKS PRINTING HOUSE

MIDDLE AND PEARL STS.

P. O. BOX 384

PORTLAND 6, MAINE



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, July, 1951

No. 7

INFECTIOUS MONONUCLEOSIS

J. B. DANA, M. D., Togus, Maine

History:

In 1889, E. Pfeiffer, an Austrian pediatrician, gave the first clear description of this disease under the title of glandular fever. He recognized that it was infectious and occurred in epidemics. He described the course of the enlargement of cervical glands in young children and stated that the glands never suppurated and that the prognosis was uniformly favorable.

Other observers in Germany quickly reported epidemics, and in 1896 an epidemic was reported in America, and in 1897 one in England. However, the diagnosis in sporadic cases rested on indefinite clinical features and the disease soon became confused with septic infections. In the medical history of World War I no mention is made of the disease although subsequent information proves that it was not uncommon.

For 30 years from 1889 to 1920 there was no systematic examination of the blood in a condition characterized by enlargement of the lymphatic glands and often by enlargement of the spleen. To this lack of observation there was one exception. In 1908, J. E. Burns fully described the lymphocytosis in two epidemics of glandular fever and he published a well documented report. Priority for the recognition of the hematologic picture in infectious mononucleosis clearly belongs to Burns. In 1920, Sprunt and Evans established the hematologic features and thought that they had discovered a new disease which they called

infectious mononucleosis. In 1922, Longcope described fully the clinical aspects. In 1923, Downey and McKinley gave a complete description of the typical mononucleosis cells to which nothing effective has been subsequently added. Finally, in 1932, Paul and Bunnell discovered that heterophile agglutinins developed in high titer in human serum in infectious mononucleosis and in no other disease with rare exception. Since 1932, there have been frequent reports in the literature of both epidemics and of sporadic cases that detail fully the broad clinical aspects of the disease.

Incidence:

The disease occurs in sporadic and epidemic form and has been described in America, Europe, Egypt, Australia, China and Japan. In the United States the most frequently encountered cases are the sporadic type affecting young persons as a rule between the ages of 15 and 30 years. With a few notable exceptions the epidemic form has been confined to young children in schools or institutions. Cases have been reported in infants and also in elderly people from time to time.

Etiology:

Suspected etiologic agents in infectious mononucleosis range from various forms of cocci and bacilli to spirochetes, protozoa and viruses, but the exact etiology has remained a matter of speculation since 1889 when Pfeiffer first described the disease.

Since 1926, when Murray observed that small bacilli could produce a mononucleosis in rabbits there has been considerable speculation as to the etiological significance of this with regard to mononucleosis in humans. The majority of evidence in favor of *Listerella monocytogenes* as an etiologic factor is based on 1) isolation of the organism from patients with infectious mononucleosis, 2) the similarity of the human blood picture to that seen in animal listerellosis, and 3) the parallelism in the animal and human pathologic pictures. Nyfeldt, in 1929, isolated the *Listerella* organism from the blood of a human patient and after that a few other successful isolations were made as compared with many failures. Julianelle was impressed with the fact that reproduction in animals seemed to suggest rather than duplicate human glandular fever. The lymphocytic blood picture in animal listerellosis failed to show the typical cytologic abnormalities characteristic of human smears.

There is sound experimental evidence to warrant serious consideration of viruses as playing some etiologic role in infectious mononucleosis. The first startling experimental work was that of Bland who fatally injected rabbits with human material and then transplanted the disease to monkeys. There are other reports of successful transmission to monkeys by Van den Berge, Sohler, and Wising.

The attempts at the reproduction of glandular fever in humans are of special interest. Sohler et al. injected human subjects with blood from infected monkeys to obtain a mononucleosis response and a positive agglutination reaction. An assistant working with Wising cut himself while working with an extirpated lymph node and developed the typical clinical picture of infectious mononucleosis.

Attempts to demonstrate inclusion bodies in association with both animal and human mononucleosis have not been clearly successful. It should be noted, however, that the apparent failure to demonstrate inclusion bodies must not be taken as final inasmuch as so little is known about the pathogenesis of glandular fever and so little has been studied.

The attempts at isolation of a virus have met with little more success than has the search for inclusion bodies. Few reports are available discussing good laboratory work on a possible virus etiology in infectious mononucleosis. Isolation has been claimed by all who have injected and sustained transmissions through animals and attempts at cultivation have been reported. Nettleship reported growths in 33% of chick embryos and of these, 50% were successfully transplanted. He worked with nasal washings and blood from 8 typical cases of infectious mononucleosis. However, in reviewing the subject in 1946, Bethell et al. stated that to date there was no good experimental data that would substantiate the theory that the disease is due to a virus despite previous reports in the literature.

Pathology:

Infectious mononucleosis is not so uniformly a benign self limited disease as it is generally regarded to be. In 1939, Thomsen and Vintrup reported 6 fatalities in 500 cases in the Blegdam Hospital in Copenhagen. In four of these, death occurred in uncomplicated infectious mononucleosis and was due in each instance to central respiratory paralysis. Jersild performed an autopsy on a patient who died of myocarditis attributed to infectious mononucleosis. Rupture of the spleen has led to fatalities in several cases and Ricker et al. have reported autopsy findings in 2 cases of Guillain-Barre syndrome associated with infectious mononucleosis.

The diagnostic value of histologic appearance in the lymphatics has usually been underestimated.

Custer and Smith reported on pathologic material obtained from 9 autopsies, over 100 lymph node biopsies, over 25 bone marrow aspirations and biopsies from spleen, liver and skin. In the 9 fatal cases the causes of death were spontaneous rupture of the spleen in 4, Guillain-Barre syndrome in 2, nasopharyngeal hemorrhage in 1, laryngeal edema in 1 and accident in 1. Virtually all of the clinical features of the disease may be explained on the basis of demonstrable pathologic changes. There are as many lesions of infectious mononucleosis as there are organs and tissues of the body although the degree of involvement of each varies markedly from case to case.

Signs and Symptoms:

The incubation period of infectious mononucleosis is difficult to determine accurately, but in the majority of cases would appear to be between 7 and 11 days. The clinical features of the disease are protean and the severity of the disease is extremely variable.

Read and Helwig analyzed 300 cases of infectious mononucleosis with reference to the admission diagnoses, the admission complaints, and the positive signs on physical examination. They found that in only 37 cases was the correct diagnosis made at the time of the patient's admission to the hospital. In 64 of the 300 cases the admission diagnosis was acute pharyngitis, in 45 it was nasopharyngitis, in 36 it was acute tonsillitis and in 19 it was atypical pneumonia. In the remaining cases the diagnoses were divided among the following: sinusitis, diagnosis uncertain, lymphadenitis, bronchitis, malaria, jaundice, cervical myositis, Vincent's angina, influenza, epistaxis, gastroenteritis, suspected meningitis, cervical mass, heat exhaustion, reaction to typhoid vaccine and psychoneurosis.

The admission complaints in order of frequency were sore throat, lymphadenopathy, malaise, headache, fever, anorexia, cough, abdominal pain, cutaneous eruption, nausea, vertigo, vomiting, arthralgia, jaundice, epistaxis and myalgia.

The positive physical signs noted in this large series included generalized adenopathy in 172 cases, cervical adenopathy alone in 123 cases, follicular pharyngitis in 112 cases, palpable spleen in 104 cases and tender adenopathy in 67 cases. Other less frequently observed physical signs were palpable liver, tender spleen, gingivitis, membranous pharyngitis, acute tonsillitis, dermatitis, jaundice, petechiae, nausea, peritonsillar abscess, vomiting, epistaxis, myositis, diarrhea, hemoptysis, abdominal tenderness, mild stupor, stiff neck and delirium.

Many writers have divided infectious mononucleosis into three types; namely, the anginose, the glandular and the febrile. In this large series of Read and Helwig 150 were anginose, 127 glandular and 23 the febrile type.

The symptoms and signs of infectious mononucleosis seem to fall roughly into four main groups, 1) respiratory characterized by nasal obstruction, cough, epistaxis, pharyngitis and tonsillitis, 2) gastrointestinal, by nausea, vomiting and abdominal tenderness, 3) hematologic, by hypoplastic and hemolytic anemia as well as thrombopenia and leukopenic neutropenia and, 4) dermatologic, by scarlatiniform or macular rashes as well as pruritis with and without jaundice.

Unusual Complications:

Neurological:

Only about a dozen cases of infectious mononucleosis exhibiting central nervous system complications had been described by 1946. In 1922, Longcope, in addition to describing the clinical aspects of the disease suggested the possibility of encephalitis in one case. However, the first clear description of the neurologic features was given by Epsetin and Damashak in 1931 and by Johannsen in 1931. The clinical features are varied and bizarre. The brain, meninges, cord, cranial nerves and peripheral nerves may be affected either separately or in combination and there is no constant order in which the ordinary manifestations of the disease and the neurologic manifestations respectively develop.

In 1947, Ricker et al. reported two cases in which both the Guillain-Barre syndrome and infectious mononucleosis were encountered and both of these ended fatally. In the first case the picture was essentially one of an extensive, rapidly progressing, peripheral neuropathy, associated with lymphocytic meningitis. The patient developed respiratory paralysis, had a convulsion and died. The autopsy findings confirmed the clinical diagnosis of infectious mononucleosis. The second patient in this series also died of respiratory paralysis and the autopsy findings were regarded as diagnostic of infectious mononucleosis.

Although fatal cases of Guillain-Barre syndrome have been reported, none of these have been characteristic of infectious mononucleosis.

Usually recovery from the neurological manifestations of this disease takes place with great rapidity.

Hepatitis and Jaundice:

Jaundice is said to occur in 3-5% of all cases of infectious mononucleosis and the incidence of involvement of the liver without jaundice is much greater it would appear. Jaundice may appear as the first symptom followed by glandular enlargement, it may occur along with glandular enlargement or it may occur with or without fever as an only symptom.

When it occurs at the onset of the disease the jaundice may be severe and there is nothing to differentiate the condition from infectious hepatitis since they both may present symptoms of anorexia, nausea, asthenia, lassitude and easy fatigability.

Because of the similarity of the symptomatology of infectious hepatitis and infectious mononucleosis with hepatic involvement, Cohn and Lidman carried out serial studies of hepatic function in cases of infectious mononucleosis without an antecedent history of hepatitis. In all the patients studied, impairment of liver function was demonstrated by more than one test of a representative series of tests.

On the basis of pathologic material obtained both at autopsy and by liver biopsy, it seems quite definite that jaundice in infectious mononucleosis is not on the basis of glandular obstruction, but rather, is on the basis of hepatocellular damage.

There appears to be a rough correlation between the severity of the systemic disease and the degree of hepatic disfunction. Cohn and Lidman felt that the dietary regime used in infectious hepatitis hastened the convalescence of people with infectious mononucleosis with hepatic damage if it were used in this condition also.

Cardiovascular Complications:

Acute myocarditis occurs secondary to many diseases of bacterial or viral origin. Candel and Wheelock reported such a case in infectious mononucleosis in which the diagnosis was made by EKG changes. Evans and Graybiel have also reported cases during an epidemic of infectious mononucleosis with evidence of cardiac involvement that was mainly pericardial and they had one case of pericarditis with massive effusion in which the only obvious etiologic diagnosis was infectious mononucleosis. Autopsy reports confirm the presence of cardiac involvement in this disease.

Hematologic Complications:

The occurrence of various hemorrhagic phenomena is now recognized as not being extremely unusual, although in earlier descriptions of the disease it was stated categorically that purpuric and petechial eruptions did not occur. Epistaxis has always been a common incident in the course of the disease and hem-

aturia has been a fairly common manifestation of infectious mononucleosis. The hematuria, while it may be severe, is not usually associated with casts or functional disturbance and rarely, if ever, is the precursor of acute nephritis.

At present the development of a hemorrhagic skin eruption is recognized as an episode of moderate frequency and merely constitutes one of a great variety of rashes which have been described with the disease. Petechial and purpuric hemorrhages may occur anywhere in the skin or mucous membranes and in some cases the tourniquet test may be positive. In all of these cases the platelets are normal.

The occurrence of a true acute thrombocytopenic purpura is exceedingly rare, but Lloyd has pointed out that this does occur. In their series of 300 cases, Read and Helwig had 3 cases characterized by severe anemia with leukopenia and thrombopenia. Anemia has been thought to be a rare manifestation of infectious mononucleosis but these cases emphasize the fact that a differential diagnosis between this disease and more serious disease cannot be made on the basis of the presence or absence of anemia or thrombopenia alone.

It is felt by Read and Helwig that anemia might result from a granulomatous infiltration of the bone marrow with resultant depression of all the formed elements and Freeman, studying bone marrow biopsies, has demonstrated such an infiltration.

Other Complications:

Several cases of spontaneous rupture of the spleen have been reported with occasional deaths. Spontaneous rupture of the spleen should be considered when signs of a very acute intra-abdominal complication suddenly appear during the acute phase of infectious mononucleosis.

Perisho and Sargent reported four cases of infectious mononucleosis in which most or all of the symptoms were confined to the abdomen. The symptoms and signs were of such character and severity as to simulate an acute surgical emergency. Mononucleosis involving mesenteric or retro-peritoneal nodes and the spleen may simulate other intra-abdominal disease. Wechsler et al. reported 12 cases out of a large series in which the major symptom was abdominal pain. All of these were admitted to the hospital with a diagnosis of acute appendicitis.

Course and Prognosis:

As mentioned earlier, the prognosis in this disease is almost uniformly favorable and in most cases the patient is well in three to four weeks at the most. However, several recrudescences may occur, thus protracting the course of the illness over many weeks or several months.

Isaac had 53 patients out of a group of 206 who

had some symptoms which persisted for a period of from three months to at least four years or longer. The syndrome included easy fatigability, exhaustion, aching of the legs, weakness, depression, afternoon elevation of temperature, moderate splenomegaly, low blood pressure, and the presence of typical mononucleosis cells in the blood. Three of the patients in this group developed the characteristics of a lymphoblastoma.

In any illness it is most difficult to separate a recurrence from a relapse or from a continuation of the same condition. However, Contralto, in his series, felt there was no instance of a continuation, recurrence or relapse when he was certain that the patient had fully recovered as manifested subjectively and objectively, and with at least the beginning of a return to normal of the white cell count and smear.

Diagnosis:

An accurate clinical diagnosis may be difficult on account of the variability of symptoms and other manifestations of infectious mononucleosis and the major problem is making of a differential diagnosis which, in most instances, can be accomplished by the heterophile test and blood cell study.

Blood Picture:

It is probable that mononucleosis develops in every case of infectious mononucleosis at some stage in the disease. All of the blood forming tissues are affected, myeloid, monocytic and lymphoid, but at different times and to different degrees. The myeloid system is earliest involved but less constantly or severely and for a shorter time than the other systems. In the severer forms of the disease an initial polymorphonuclear response is not infrequent and this is a common cause for overlooking the diagnosis. Polynucleosis is always transient and initial. The rise of the mononuclear reaction may overlap the fall of the polys, but, in the more severe forms, the reaction is delayed and the blood count may become normal and may remain so for 2-3 weeks or more, or may fall further to a leukopenia before mononucleosis appears. Leukopenia is fairly common at the onset or during the course of severe cases before the mononucleosis appears. So rapidly may alterations take place in the types of white blood cells and their number, and so great are the differences in different cases, that no single blood picture is exclusively typical of the disease. However, most characteristic during the active stages is the presence simultaneously of various types of mononuclear cells particularly with a high incidence of typical monocytes, an appearance rarely seen in any other disorder of blood.

Heterophile Antibodies:

As previously mentioned, Paul and Bunnell, in 1932, discovered quite by accident that heterophile

agglutinins developed in a high titer in human serum in cases of infectious mononucleosis. With some modifications this test has become an invaluable, but not an infallible, aid in diagnosis of infectious mononucleosis.

In the common mild cases 90% show a positive heterophile after 4-5 days. In the more severe febrile forms the reaction may remain negative during several weeks of pyrexia and constitutional disturbances and become positive about when mononucleosis and glandular swelling develop.

Constitutional symptoms often are ameliorated with a rise in titer and this may be connected with the development of immunity. The titer has no constant relationship to the severity of the disease, the extent of the glandular swelling or to the degree of lymphocytosis. The time during which the reaction remains positive may be from a few days to several months. On the other hand, the test may never become positive and it seems that in most instances a positive reaction is proof of infectious mononucleosis and a negative reaction does not exclude it. A rising titer is of great significance.

Though the almost 100% specificity of the heterophile reaction for infectious mononucleosis, except in some cases of serum sickness, has been a conceded fact, Schultz, in a series of 503 tests in 220 patients found the high incidence of so-called diagnostic titers in diseases other than infectious mononucleosis to be very impressive. In 16 of 18 tests on 6 patients with Hodgkin's disease the titers were in the diagnostic range. In 6 patients with myelogenous leukemia, 24 of 45 readings were in the diagnostic range. Other titers in the diagnostic range were found in patients with monocytic leukemia, sarcoma other than Hodgkin's, tuberculosis, one case of allergy, one case of staphylococcic septicemia, thyrotoxicosis, splenic thrombocytopenia, chronic nephritis, aplastic anemia, diverticulitis, migraine, in patient receiving liver injections and in one patient with quiescent rheumatic fever.

Patients showing a heterophile antibody titer of 1:56 or over and with no present or past clinical evidence of infectious mononucleosis or serum sickness deserve further study to determine the presence of organic disease. These diagnostic titers should not be dismissed as incidental but rather should indicate further probing for a disease in which there are abnormal cells present in the blood or elsewhere.

Differential Diagnosis:

Possible errors in diagnosis are numerous and mistakes in practice are not uncommon. Infectious mononucleosis is a protean disease second only to syphilis in its ability to mimic other conditions.

Cases with severe sore throat may be mistaken for

diphtheria, follicular tonsillitis, herpetic pharyngitis or aphthous stomatitis. The skin manifestations may resemble those of scarlet fever, German measles, or erythema nodosum or multiforme. The fever and systemic symptoms may suggest typhoid fever, undulant fever, influenza, bacterial endocarditis, or even acute rheumatic fever; while symptoms and signs of meningeal irritation and cerebro-spinal fluid abnormalities make it necessary to rule out pyogenic or benign lymphocytic meningitis, encephalitis or poliomyelitis.

Fever or glandular enlargement in a child or young adult which are out of proportion to any local inflammatory manifestations, should indicate the need for a blood examination and a test for heterophile antibodies.

It must be noted, furthermore, that lymphocytosis, relative or absolute, may be encountered regularly or occasionally in the following diseases, all of which may be and have been confused with infectious mononucleosis: leukemia, agranulocytosis, Vincent's angina, tuberculosis, tularæmia, pertussis, dengue, mumps, chickenpox, German measles, typhoid, benign lymphocytic meningitis, infectious hepatitis, serum disease and various allergic states. A false positive test for syphilis or a false positive Widal test or agglutination for brucellosis may occur, thus making differential diagnosis more difficult.

Treatment:

The treatment of this disease has up until quite recently been for the most part symptomatic. Several reports have appeared during the past few years recording favorable results in the treatment of infectious mononucleosis with aureomycin. It has been felt by some investigators that aureomycin is effective in decreasing the duration of fever, hospital stay and total course of the disease. Lyons and Hard believe that in their cases the duration of liver involvement was reduced. In a recent review of 9 cases, Carter and Sydenstricker noted impressive beneficial effects from aureomycin in every case.

In evaluating any therapy in infectious mononucleosis it is well to keep in mind the protean manifestations and extremely variable course of the disease and to be cautious in appraisal of the results of treatment. It would appear that aureomycin is worthy of further clinical trial.

Conclusion:

Since infectious mononucleosis is such a common disease and since it can be mistaken for some disease with far more serious implications, it was felt that it was worth while to reiterate the bizarre and protean character of this disease in all of its clinical and laboratory manifestations, so that it might at all times be kept in mind in problems of differential diagnosis.

BIBLIOGRAPHY

1. Bernstein, A.: *Medicine*, 19:85-159, 1940.
2. Tidy, H.: *Blood*, 3:823-829, 1948.
3. Custer, R. P., and Smith, E. B.: *Blood*, 3:830-857, 1948.
4. Isaacs, R.: *Blood*, 3:858-861, 1948.
5. Allen, F. H., and Kellner, A.: *Am. J. Path.*, 23:463-471, 1947.
6. Cohn, C., and Lidman, B.: *J. Clin. Invest.*, 25:145, 1946.
7. Schultz, L.: *Arch. Int. Med.*, 81:328-334, 1948.
8. Paul, J. R., and Bunnell, W. W.: *Am. J. Med. Sc.*, 183:90-104, 1932.
9. Gehebter, S.: *Lancet*, 2:753-74, 1946.
10. Tidy, H.: *Lancet*, 2:819-821, 1946.
11. Evans, W., and Graybiel, A.: *Am. J. Med. Sc.*, 211:220-226, 1946.
12. Candel, S., and Wheelock, M.: *Ann. Int. Med.*, 23:309-337, 1945.
13. Ricker, W., Blumberg, A., Peters, C., and Wideman, A.: *Blood*, 2:217-225, 1947.
14. Bethell, F., Sturgis, C., Rundles, R., and Meyers, M.: *Arch. Int. Med.*, 77:90-119, 1946.
15. Read, J., and Helwig, F.: *Arch. Int. Med.*, 75:376-380, 1945.
16. Perisho, G., and Sargent, D.: *U. S. Nav. Med. Bul.*, 45:215-219, 1945.
17. Brock, W.: *Northwest Med.*, 46:197-199, 1947.
18. Milne, J.: *N. E. J. of Med.*, 233:727, 1945.
19. Contralto, A.: *Arch. Int. Med.*, 73:449, 1944.
20. Lehdorff, H.: *Arch. Ped.*, 63:218-223, 1946.
21. Lloyd, P.: *Am. J. Med. Sc.*, 207:620, 1944.
22. Darley, W., Black, W., and Smith, C.: *Am. J. Med. Sc.*, 208:381-385, 1944.
23. Wechsler, H., Rosenblum, A., and Ellis, C.: *Ann. Int. Med.*, 25:113, 1946.
24. Wintrobe, M.: *Clinical Hematology*, Lea and Febiger, Philadelphia, 1946.
25. Cecil, R.: *A Textbook of Medicine*, W. B. Saunders Co., Philadelphia, 1947.
26. Rose, H. M., and Kneeland, Y., Jr.: *Am. J. Med.*, 7:532, 1949.
27. Seifert, M. H., Chandler, V. L., and Winkle, W. V.: *J. A. M. A.*, 142:1133, 1950.
28. Lyons, H. A., and Hard, E. M., *Bull. N. Y. Acad. Med.*, 26:279, 1950.
29. Carter, H. C., and Sydenstricker, V. P.: *Am. J. of Med.*, 10:309-315, 1951.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration."

THE RESPONSE OF EOSINOPHILIA IN ALLERGIC STATES

FRANCIS A. SPELLMAN, M. D.*

The fall of circulating eosinophils induced by the adrenalin¹ and ACTH² tests have given the clinician a reliable means of measuring adrenocortical function. Whereas other indices such as the response of the blood sugar and 17-ketosteroids may give proof of cortical activity during cortisone or ACTH therapy, the above tests are the simplest means of evaluating the adrenal cortex prior to such therapy or for other purposes. The question has arisen as to whether the eosinophils of parasitic and allergic states respond normally to these tests. Morales, Casas and Sanz³ have demonstrated in 10 out of 12 cases that the eosinophils in parasitic infestations decrease at least forty percent four hours after the injection of 0.3 mg. of epinephrine. ACTH tests were not done.

Randolph and Rollins⁴ state that eosinophils may disappear in patients treated with ACTH regardless of the level of the eosinophil count before therapy. In the proceedings of the First Clinical ACTH Conference, they present three cases of asthma treated with ACTH in whom a marked eosinophilia dropped pre-

cipitously following institution of therapy. In the same publication, Rose⁴ noted in five asthmatics that eosinophils were reduced to zero in 24 hours. Brown⁵ states that clinical improvement may take place during ACTH therapy even though eosinophils do not drop. In one case of trichinosis seen at this hospital in which there was a marked eosinophilia (3900/cu. mm.), the total count fell only by 400 cells after 0.3 mg. of adrenalin, but since the test was not repeated with adrenalin or ACTH no accurate conclusion can be drawn in this instance.

The following patient exhibited a marked allergic eosinophilia during hospitalization for a severe dermatitis venenata complicated by an exfoliative phase. During ACTH therapy eosinophils dropped slightly over 30% when the drug was given in adequate dosage. The patient also illustrates certain other important and interesting aspects of ACTH therapy.

A 55-year-old white male farmer was admitted to the hospital on 8/28/50 complaining of a generalized weeping eruption of the face and legs. The initial lesions had appeared on the forehead and right ankle two weeks previously and became generalized in character following the second of a series of four injections of poison oak extract. The patient stated that an ointment prescribed for the eruption had caused severe itching and burning when applied. A

* From the Medical Service, Veterans Administration Center, Togus, Maine.

"Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are a result of his own study and does not necessarily reflect the opinion or policy of the Veterans Administration."

previous admission for a contact dermatitis had also followed similar injections.

Physical examination revealed a poorly nourished, middle-aged white male in obvious distress because of a weeping eruption involving particularly the face and legs. B. P. 140/86. The skin of the face, neck and upper trunk was red, thickened, scaly and dry. In certain areas the eruption was seen to be oozing serum. The skin over the legs presented a similar appearance. There was a bilateral axillary adenopathy. Initial laboratory data: WBC. 8800; N. 67; L. 28; E. 5; Hgb. 15 gms.; RBC. 4.7 m.; Sedimentation rate 80/mm.hr.; Fasting blood sugar 115 mgs.%. Electrocardiogram within normal limits.

Clinical Course: Initial therapy with bland ointments, pyribenzamine and starch baths brought relief from itching, but during the ensuing seven days a generalized exfoliative dermatitis developed. ACTH therapy was started on 9/15/50 in a dosage of 20 mg., q.6.h. I.M. The eosinophil count fell from 162/cu.mm. to 131/cu.mm. four hours after the first 25 mg. of ACTH, not an impressive drop. Dramatic improvement in the general condition of the skin had occurred at the end of the first 48 hours of treatment. ACTH therapy was stopped abruptly on 9/20/50 and this was followed on 9/24/50 by a marked exacerbation of symptoms and a persistent increase in eosinophils to 1500/cu.mm. ACTH was resumed in a dosage of 10 mg. q.6.h. on 9/26/50, but since symptoms progressed the dosage was increased to 20 mg. q.6.h. on 9/29/50. By 10/5/50, a marked improvement was again obvious. ACTH was continued until 11/15/50, when it was stopped after the dosage and intervals of administration had been gradually tapered off. Daily weights and blood pressure remained within normal limits throughout treatment and weekly determinations of CO₂ combining power and serum chlorides revealed no alteration of acid base balance. The sedimentation rate fell to normal with the first period of clinical improvement but remained elevated thereafter. The blood sugar rose to 148 on one occasion but was normal thereafter. The patient was maintained on a low salt diet and given potassium chloride, one gm., t.i.d.p.o. Serial electrocardiograms showed no evidence of hypopotassemia. On 10/26/50, an ACTH test was done four hours after the injection of 50 mg. of ACTH, resulting in a fall of circulating eosinophils from 1820/cu.mm. to 1270/cu.mm. A drop of this magnitude may represent an adequate response of "allergic" eosinophils

to adrenal cortical stimulation, although it is less than the 50% fall noted in normal subjects.

Discussion: The fact that 50 mg. of ACTH was required to produce a response and that a high level of eosinophils persisted throughout therapy may indicate that the patient had developed ACTH resistance. According to Forsham,⁴ this phenomenon is particularly apt to occur if ACTH therapy is interrupted for one or two weeks as it was in this case. Among the mechanisms postulated to explain this have been (a) adrenal cortical insufficiency and (b) the possible presence of ACTH neutralizing antibodies. The cortex was probably functioning normally in this patient since a good clinical response to the drug was eventually obtained, the blood sugar rose during therapy, and the eosinophiles fell after an adequate dosage of ACTH. The possibility of neutralizing antibodies is the more likely explanation here. Brown⁵ points out that flare-ups in contact dermatitis treated with ACTH are most likely to occur if the drug is withdrawn at a time when the patient is still coping with a significant level of the offending antigen. The poison oak extract may have provided a depot in this patient from which antigen was slowly released.

Conclusion: On the basis of a brief review of the literature and the evidence presented in one case of allergic eosinophilia, it would appear that eosinophils in allergic states respond either normally or somewhat less than normally to the adrenalin and ACTH tests. An interesting instance of possible ACTH resistance is presented and its mechanisms discussed. This phenomenon may possibly be prevented by avoidance of abrupt cessation of ACTH therapy and the gradual tapering off of the dosage and intervals of administration.

BIBLIOGRAPHY

1. Laragh, John H., Almy, Thomas P.: Changes in Circulating Eosinophils in Man Following Epinephrine, Insulin, and Surgical Operations. *Proceedings of the Society for Experimental Biology and Medicine*, 1948, 69, 499-501.
2. Thorn, G. W., Forsham, P. H., Prunty, F. T. G., and Hills, R. G.: A Test for Adrenal Cortical Insufficiency. The Response to Pituitary Adrenocorticotrophic Hormone, *J. A. M. A.*, 137:1005, 1948.
3. Morales, F. Hernandez, Casas, Carmen B., and Sanz, Maria Garcia: Thorn Test and Eosinophilia Related To Parasitic Infection.
4. *Proceedings of the First Clinical ACTH Conference*, The Blakiston Company, 1950.
5. Brown, Ethan Allen: ACTH and the General Practitioner, *Journal of the Maine Medical Association*, March, 1951, Vol. 42, No. 3.

We need to teach people not only how to avoid tuberculosis, how to recover from tuberculosis and how to stay recovered, but also how to be healthy and how to make the most of life. . . . We cannot do an

effective job in tuberculosis unless we do also a thoroughly good job of health education — that is, education in health. — Iago Galdston, M. D., *Nat. Tuberc. A. Tr.*, 1949.

REPORT ON LOBOTOMY PROGRAM

Neuropsychiatric Hospital, Veterans Administration Center, Togus, Maine*

ISRAEL ZELTZERMAN, M. D.**

As an additional method in the treatment of the neuropsychiatric patient, a lobotomy program was instituted at this hospital in November of 1948. Since that time, 28 prefrontal leukotomies have been done by our Consultant Neurosurgeon of Portland, Maine. One patient was transferred to another Veterans Administration hospital shortly after operation, and this paper will deal with the other 27 patients.

In selecting patients for this operation, we have been quite conservative, choosing those patients considered to be chronically ill who have not responded to other forms of treatment and with little or no likelihood of improvement with other forms of available psychiatric treatment. (See case reports). Each case record is first carefully and thoroughly reviewed, and each patient interviewed at a joint meeting of a lobotomy committee consisting of three staff members of the Neuropsychiatric Hospital, including the Chief of Professional Services, plus the Consultant Neurosurgeon. At this meeting a decision is made as to whether or not lobotomy is indicated. An objective of treatment — adjustment outside of the hospital or better hospital adjustment — is set down. Based upon information available, we have used the following signs as criteria in the selection of patients, in addition to chronicity of illness and non-response to available forms of therapy: aggressiveness, assaultiveness, hyperactivity, homicidal tendencies, suicidal tendencies, destructiveness, hallucinatory experiences and delusional formations — especially those of a paranoid nature — which have considerable associated emotional tone and to which the patient reacts strongly — tension, worry, fear and agitation.

When a decision for operation has been reached, the patient's relatives are contacted and are asked to come to the hospital personally so that the operation might be discussed with them. At this interview, the improvements that might possibly be expected are discussed. The undesirable effects that may result are strongly emphasized. We make no attempt to "sell" the operation to the relatives, but give them all the facts we have available. We also recommend that they discuss the advisability of operation with their family physician.

Prior to operation, the following workup is done:

1. Pre-lobotomy Mental and Physical Status: Progress note by ward physician including:
 - a. Complete physical examination.
 - b. Note whether patient is left-handed or right-handed.
 - c. List operations which have required an anesthetic.
 - d. Mental status (including dictaphone recording of conversation, if possible).
2. Laboratory work done in advance:
 - a. Complete blood count.
 - b. Fishberg Concentration Test.
 - c. Urinalysis.
 - d. Chest X-ray.
 - e. Skull X-ray.
 - f. EEG.
 - g. Lumbar puncture.
 - h. Wechsler Bellevue and Rorschach tests.
3. Laboratory work done 2 days prior to operation:
 - a. Complete blood count, bleeding and clotting time.
 - b. Urinalysis.
4. On day of operation:
 - a. Bath and shave head.
 - b. Cross-matching and typing, with provisions for blood transfusion.

The operation is done at the General Medical and Surgical Hospital and rehabilitation is instituted immediately after the patient recovers from surgery. As soon as possible, the patient is returned to the Neuropsychiatric Hospital where an attempt is made to fit the patient into a regularly scheduled program of activities conducted by the Special Service and Physical Medical Rehabilitation groups. It has been our feeling that these patients do better in their rehabilitation if handled as a group, and we have been able to set aside a 9-bed dormitory for a group of 9 of the clinically most promising post-lobotomy patients.

Of the 28 patients operated, 26 were patients with schizophrenic reactions, and 2 with manic depressive reactions. There were 3 deaths — one attributed directly to operation, and 2 were of post-operative complications. The age groupings of the patients, 24 in number (one transferred and 3 deceased not in-

* Published with permission of the Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by the author.

** Chief, Professional Services, Neuropsychiatric Hospital, Veterans Administration Center, Togus, Maine.

cluded) were as noted in Table No. 1. The youngest patient was 24 years of age, and he had been ill for a period of 3 years. The oldest patient, age 54, had been ill for 28 years. Six of the patients were in the

20-29 age group, eleven in the 30-39 age group, six in the 40-49 group, and one in the 50-59 group. The average number of years of illness prior to operation is also given in Table No. 1.

TABLE NO. 1

Average Yrs. Ill Prior to Opr.	Age Group	Improvement			
		Marked	Moderate	Slight	None
6.6	20-29	3	2	0	1
6.7	30-39	4	2	4	1
5.8	40-49	0	1	1	3
26	50-59	1	0	1	0

The patients have been classified as showing marked improvement, moderate improvement, slight improvement and no improvement. (See Table No. 1.) Patients selected initially (disturbed, homicidal, suicidal, etc.) fell into the category of those who required fairly constant hydrotherapy, and a hydrotherapy suite of 25 neutral packs and tubs was maintained. With the lobotomy program, we have been able to shut down this suite (for over a year now) and the personnel relieved are used in other phases of the treatment program. Necessary mechanical restraint was also reduced to one-third of that used a year ago. No seclusion rooms have ever been used in this hospital.

We have not found any significant trend in the subtypes of schizophrenic reactions with regard to improvement.

TABLE NO. 2

Diagnosis	Marked	Improvement		None
		Moderate	Slight	
Schizophrenia:				
Catatonic	2	1	1	1
Hebephrenic	0	0	3	1
Paranoid	2	0	2	2
Unclassified	3	3	0	1
Manic-Depressive	1	1	0	0

One of the patients with a manic depressive reaction was 44 years of age at the time of operation and had been ill for 5 years. His condition is considered moderately improved. The other was 53 years of age and had been ill for 26 years. His condition is considered markedly improved at the present time and he could leave the hospital could suitable arrangements be made.

Of the patients considered markedly improved, four are now out of the hospital. The other patients in this grouping could be out of the hospital if social and economic conditions would permit. Three of the patients who left the hospital are gainfully employed. None of the patients' psychotic reactions have become worse after operation. Convulsive seizures post-lobotomy have not been a problem. Any convulsions

which develop are easily controlled by anti-convulsive medication. Initially, following operation some of the patients have had difficulty in control of their bladder and bowels but they reacted readily to a program of retraining. One patient developed a rather silly euphoria which did not exist prior to operation. Torpid behavior exists in a few patients.

In this hospital the operation of lobotomy has been a marked factor in (a) improving hospital adjustment of patients, and (b) in several cases has been a factor in helping patients make an adjustment outside of the hospital environment. In general, the patients' psychoses have become less disabling and incapacitating, and aggressiveness, assaultiveness, destructiveness and hyperactivity have become less pronounced.

The following are representative case summaries:

Patient No. 1: Age, 30 years. Admitted to Togus on December 23, 1944. Information regarding pre-psychotic personality and background is limited. Completed 8 grades of school and worked as a shoemaker. Onset of psychosis in 1944; showed alternating periods of seclusiveness and excitability, with assaultiveness. Spent considerable time in restraint and hydrotherapy. Received 2 series of electroshock therapy. Diagnosed: Schizophrenic reaction, chronic, unclassified type. Lobotomy performed on November 17, 1948. Had stormy physical course following operation. Mental condition improved and patient became quiet and fairly sociable. Has been on trial visit from hospital since July, 1949, and is making an adequate adjustment on a farm. Condition is considered markedly improved.

Patient No. 2: Age, 29 years. Admitted to Togus on June 27, 1944. History of early emotional instability and unfavorable home environment. Onset of illness in 1941. Described as being confused, emotionally levelled, preoccupied, withdrawn, with frequent episodes of overactive, disturbed, noisy behavior. Was a marked problem in management and

spent considerable time in restraint and hydrotherapy. Was given 2 series of electroshock therapy without sustained improvement. Diagnosed: Schizophrenic reaction, unclassified type, chronic. Lobotomy performed on January 26, 1949. Following operation has remained disturbed but not as noisy as formerly; is still seclusive. Has not required any restraint or hydrotherapy. Condition is considered slightly improved.

Patient No. 3: Age, 53 years. Admitted to Togus on June 10, 1947. Onset of illness in 1926, at which time he became quite overactive and destructive, and was hospitalized at the Augusta State Hospital. He had at least 3 frankly psychotic episodes prior to present admission and showed marked mood disturbances at all times. These episodes were marked by overactivity, irritability and outbursts of rage; he was quite assaultive at times. Was given 2 series of electroshock therapy, with a total of 60 grand mal reactions. While receiving shock treatments, he was well-behaved and in good contact but as soon as treatments were omitted, he would become very hyperactive, sarcastic, abusive, obscene and paranoid, and required considerable restraint and hydrotherapy. Diagnosed: Manic depressive reaction, manic type. Lobotomy performed on September 1, 1950. Since that time mood has remained neutral and there has been no increase in psychomotor activity. He has made a remarkable adjustment to hospital routine and efforts

are being made to place him back in the community. Condition is considered markedly improved.

Patient No. 4: Age, 31 years. Admitted to Togus on March 19, 1945. Nothing is known about pre-psychotic personality except that he attended college for one year. Illness began in 1944. At Togus is described as seclusive, mute, preoccupied, hallucinated, occasionally assaultive and destructive, and a feeding problem. Received 3 series of electroshock therapy without sustained improvement. Spent considerable time in restraint and hydrotherapy. Diagnosed: Schizophrenic reaction, catatonic type. Lobotomy was performed June 8, 1949. Since operation has been in a catatonic stupor but can be activated through concentrated attention. Condition is considered unimproved.

"Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration."

REFERENCES

1. Solomon, Harry C.: Veterans Administration Technical Bulletin 10-46, Prefrontal Leukotomy, An Evaluation.
2. Freeman, W., and Watts, J. W.: Psychosurgery, 1942, Charles C. Thomas.
3. Drubin, L.: Lobotomized Psychotic Male Veterans, Journal of Nervous and Mental Disease, 113:247, 1951.
4. Greenblatt, M., Arnot, R., and Solomon, H. C.: Studies in Lobotomy, 1950, Grune & Stratton, Inc.

UNUSUAL CASE OF DESMOID TUMORS OF ABDOMINAL WALL*

E. L. FOOTE, M. D., and S. M. ANDERSON, M. D.

A case is to be presented in whom there apparently occurred independent desmoid tumors of the abdominal wall and the right inguinal canal. The case is noteworthy because of the unusual occurrence of two desmoid tumors and to illustrate the importance of determining the microscopic character of a tumor mass at the time of its removal.

The desmoid tumor belongs to the fibroma group of neoplasm and has been known since 1832 when MacFarlane in Glasgow, Scotland, described a tumor in the layers of the abdominal wall. It was first known as a "recurring fibroma" which indicated some local invasive powers. In 1838, this neoplasm was described and given the name "Desmoid" by Muëller. The term desmoid was derived from two Greek words and indicated that the tumor had a tendon-like appearance. Since then, the tumor has been adequately described in literature. Sanger described it

adequately in several papers about 1881. Nichols, in 1923, described an extra-abdominal tumor which had the characteristics of a desmoid. He reported six extra-abdominal cases with about 25 cases of desmoid tumors involving the abdominal wall. Stewart and Monat, in 1934, described 66 cases; Pearman and Mayo, in 1942, reported a clinical and pathological study of desmoid tumors, having analyzed 77 cases. Pack and Ehrlich reviewed 391 cases. Musgrove and McDonald, at the Mayo Clinic, gave an excellent description, differential diagnosis and treatment of extra-abdominal desmoid tumors. Many authors have reported extra-abdominal tumors which have the gross histological characteristics of a desmoid tumor.

Desmoid tumors are usually solitary. The abdominal cases arise from the muscular aponeurosis, are rarely in the midline and the majority are below the umbilicus. 80 per cent arise in females usually in the 3rd and 4th decade. They arise in sites of previous

*From the Departments of Pathology and Surgery of VAH, Togus, Maine.

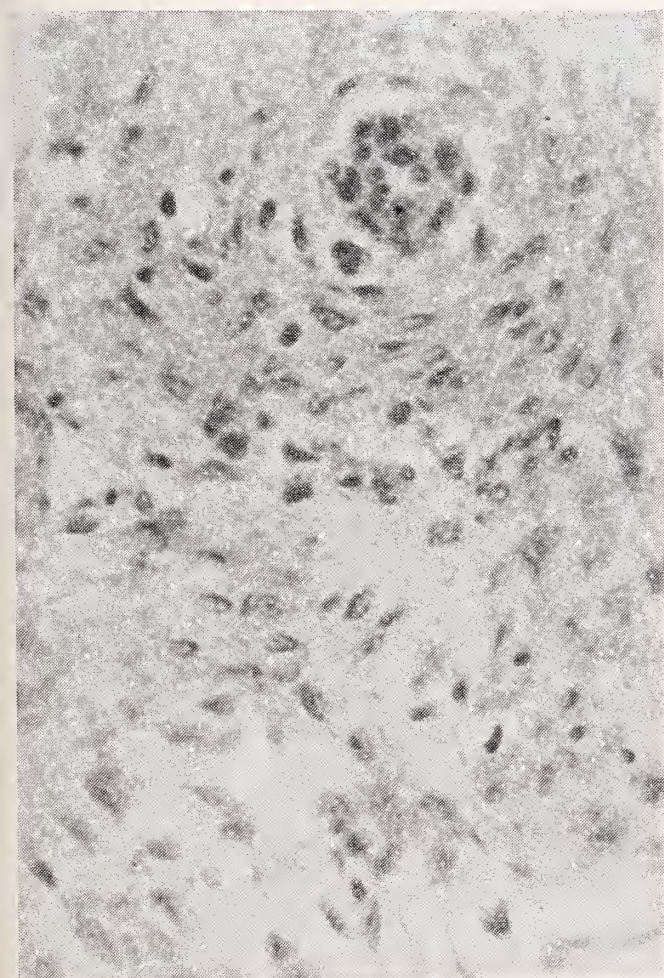
trauma and scar formation and their etiology has been connected with trauma, hematoma formation, etc. In 1935, an endocrine theory of origin was indicated by Geschickter and Lewis.

Although desmoid tumors vary greatly in size, on gross examination they are usually solitary, of hard and elastic consistency, oblong, unencapsulated and fixed to the surrounding tissue by local infiltration. The cut surfaces may show pink areas contrasting with the gray fibrous tissue. In some tumors, they may show gross areas of myxomatous degeneration. Microscopically, desmoids show a great variation in cellularity. There is usually striated muscle inclusion at the border of the tumor which is a characteristic finding of a desmoid. The central portions of the tumor are older and show a more compact structure than the growing edge. Myxomatous degeneration is not uncommon with formation of intercellular spaces.

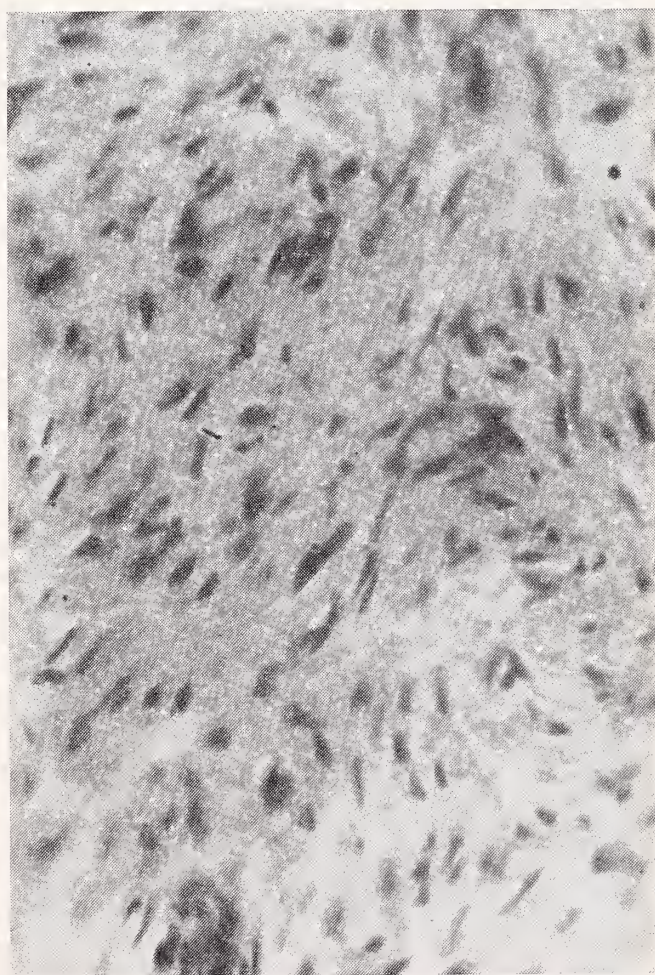
Since desmoids have a local invasive power and vary in cellular appearance, they must be differentiated from fibrosarcoma. If a cellular area is encountered in a frozen section for diagnosis at the time of operation, it may be very difficult to distin-

guish it from a fibrosarcoma. The distinguishing features of the latter are: Encapsulation, type of cellularity, cystologic character of mitoses, presence of pathological mitosis, presence of tumor giant cells and variation in the cellular size, shape and staining characteristics of the nuclei. Many fibrosarcomas are encapsulated, usually round, larger, softer in consistency and metastasize. Desmoids also have to be differentiated from other tumors in similar locations. These include lipomata, keloid, neurofibromata, benign rhabdomyoma and hemangio-endothelioma. Portions of desmoid may show whorl and palisading of the spindle cells similar to that found in neurofibroma. Desmoids are usually deeper than keloids and do not have the lobulated adipose tissue surface of lipomata. Hemangio-endothelioma, as well as desmoid, grows into striated muscle. Giant cells are not seen but portions of the desmoid may show some round cell infiltration.

A 30-year-old World War II veteran was first admitted 5 April, 1949, because of "swollen gland" in the right groin. A small, painless lump had first been noted about two years before entry. There had been



No. 1 Microsection showing desmoid tumor with grade I cellularity. An area of increased cellularity surrounding a vessel is also shown.



No. 2 Desmoid tumor. It should be noted that in the upper portions of the section, there is some variation in the shape and staining of the nuclei in addition to a variation in degree of cellularity.

no marked change in size or character of the mass during this period. There had been no antecedent infection in the groin, genitalia, perianal region or lower extremities. Past history revealed that an appendectomy had been performed at the age of 10. Physical examination revealed a well-developed and nourished, young male in no distress. Heart and lungs were normal. In the right, inguinal region was a hard, freely-movable mass overlying the spine of the pubis, non-tender and measuring $1\frac{1}{2} \times 2\frac{1}{2}$ cm. A well-healed appendectomy scar was present in the right lower abdomen. A firm, non-tender mass the size of a golf ball was felt in the abdominal wall beneath the upper portion of the scar. Routine laboratory tests, including serologic test for syphilis, were normal. X-rays of the hips and pelvis revealed no abnormality of soft tissues or bony structures. A flat film of the abdomen and a barium enema were negative.

On 15 April, 1949, a biopsy of right inguinal mass was done. At operation a firm, nodular mass was encountered which was fixed to the right pubic ramus and was considerably larger than had been anticipated

and extended deep into the surrounding tissue. Upon cutting into the mass, straw-colored fluid escaped under tension. A small piece was removed for biopsy and pathological examination revealed only fatty and fibrous tissue. The patient was discharged after an uneventful convalescence and advised to return in three months.

On 22 August, 1949, patient was readmitted at which time examination revealed no significant change in the mass beneath the appendectomy scar. Only a small area of induration was present at the site of previous biopsy in the right groin. Barium enema was repeated and was again negative. On 9 September, 1949, removal of the mass in the abdominal scar was carried out. At operation a fairly discrete, solid mass was found deeply embedded in the substance of the internal oblique muscle. Grossly the specimen consisted of a firm, oval, irregular mass measuring $2\frac{1}{2} \times 4 \times 3.2$ cm. On section it appeared to be composed partly of fibrous tissue and partly of muscle; it did not appear encapsulated. Histologically, it had the characteristics of a desmoid tumor. Patient's post-operative course was uneventful and he was discharged and advised to return again in three months.

Patient was next seen in April, 1951, complaining of a persistent lump in right groin. Since his discharge, he had noted occasional burning and a sensation of pressure in the region of the lump in right groin. He appeared to be quite concerned about the persistence of the mass and desired its removal. The lump had not increased in size according to the patient. Physical examination revealed a $2 \times 2\frac{1}{2}$ cm., firm, ovoid mass in the region of the right pubic spine. This was movable superficially but firmly fixed to the underlying structures, and was slightly tender. Examination of the appendectomy scar revealed no evidence of recurrence of the previous desmoid. X-rays of the right inguinal region suggested a poorly-defined, soft tissue mass. On 5 April, 1951, exploration of the inguinal region was carried out. A firm, lobulated mass was first encountered projecting from the right external ring and completely surrounding the spermatic cord. A biopsy was taken at this time and again revealed a tumor of the desmoid type on frozen section. Division of the external oblique fascia revealed the mass to involve the entire length of the spermatic cord to its point of emergence through the internal ring. The mass also involved the medial portion of the inguinal ligament inferiorly, the conjoined tendon superiorly, the pro-peritoneal fat and transversalis fascia beneath. With sacrifice of portions of all of these structures, complete removal was possible. Removal of a generous portion of the spermatic cord was also necessary. Gross examination of the removed specimens revealed a firm, reddish-brown, oblong, rubbery tumor. The mass cut with a gritty sensation and did not appear encapsu-



No. 3 Low power view of central portion of tumor. It shows whorl formation of spindle cells together with an area of pallisading. The cellular variation here is less marked.

lated. The cut surface was a mottled pink and gray color and revealed numerous bundles of fibrous tissue. Near the periphery of the mass, the texture was soft and edematous. Tags of muscular and fascial tissue were attached to the external surface of the tumor mass. Microscopic examination revealed the tumor to be composed of numerous bundles of connective tissue. The cellular structure varied in different portions of the tumor. Near the periphery, a histological picture was found which was very similar to that of the previous desmoid removed from the appendectomy wound. Here there was moderate cellularity with few mitotic figures. In the central portions of the tumor, there was a more compact, fibrous appearance with whorls of densely packed spindle cells and a suggestion of pallasading in one area. Surrounding small vascular channels was a marked increase in cellularity.

SUMMARY AND CONCLUSIONS

- 1. A case with apparent independent desmoid tumors arising in an abdominal scar and the right inguinal canal has been presented. The value of biopsy in an inguinal tumor at the time of its removal has been demonstrated.
- 2. Due to their tendency to recur, these tumors should be completely removed at operation, if possible.

- 3. Since these tumors vary in cellularity in different areas, they should be differentiated from fibrosarcoma on the basis of the location of the tumor, encapsulation, cellularity and pathological nuclear changes.

REFERENCES

1. Nichols, R. W.: Arch. Surg., 7:227, 1923.
2. Stewart, M. J., and Monat, T. B.: Brit. Jour. Surg., 12:355, 1924.
3. Geschickter, C. F., and Lewis, D.: Am. J. Cancer, 25:630, 1935.
4. Pearman, R. O., and Mayo, C. W.: Ann. Surg., 115:114, 1942.
5. Pack, G. T., and Ehrlich, H. E.: Int. Abstr. Surg., 79: 177-198, 1944.
6. Musgrove, J. E., and McDonald, J. R.: Arch. Path., 45:513-540, 1948.
7. Willis, R. A.: Pathology of Tumors, C. V. Mosby Co., 1948.

“Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.”

* We are indebted to Irving Goodof, M. D., Consultant Pathologist, for making the microphotographs.

SYNDROME OF SUPERIOR VENA CAVA OBSTRUCTION
WITH REPORT OF A CASE

JOHN F. LOUGHLIN, M. D., Asst. Chief Medical Service

The syndrome of obstruction of the Superior Vena Cava is very interesting both from the clinical and anatomical viewpoint.

Ehrlich, Ballon and Graham in 1934 reviewed the entire literature on this subject and collected three hundred nine cases exhibiting the clinical picture as it is usually known. They believe that minor degrees of compression may occur more commonly than is believed since such may cause no symptoms and be overlooked and they suggest that some cases with mediastinal tumor may be overlooked because of masking by the more obvious and distressing symptoms as dyspnea and dysphagia caused by the resulting pressure.

Ochsner and Dixon, in 1936, made an exhaustive study of the literature on this subject and collected

one hundred twenty cases of superior vena cava obstruction. The syndrome in its characteristic form at least is not a common one.

The report of a case exhibiting features of this syndrome is considered to be worthy of presentation.

H. L. M., a 53-year-old, white, male veteran, was admitted to the U. S. VA Hospital, Togus, Maine, on September 28, 1950, complaining of swelling of the face and neck associated with slight difficulty in swallowing, tendency to orthopnea and shortness of breath on moderate exertion. Approximately seven weeks prior to admission he noticed that when bending over he felt a tightening feeling in his neck, his eyes bulged and he had slight double vision. Four to five weeks prior to admission he noticed that his neck was swelling and he was unable to close his collar. During the two weeks prior to admission his neck swelled more and more and he felt as if he were going to choke whenever he reclined. At this time he first noted that the veins in his upper extremities were

“Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.”

dilated together with prominence of veins across his chest and shoulders. One week before hospitalization he experienced slight difficulty in swallowing liquid as well as solid food and he had slight hoarseness. His appetite had remained good and there was no loss of weight.

Past history and family history were non-contributory.

Physical examination revealed a well-developed and well-nourished, adult white male of approximately 50 years of age appearing quite tense and nervous and obviously acutely ill. Temperature, pulse, and respirations were normal. There was a dusky cyanosis noted with some flushing of the face, neck, upper chest and upper extremities. The thyroid was not enlarged. There were some supraclavicular lymph nodes on the right and left but they were difficult to delineate because of the swelling present. There were tender pea-sized nodes present in the posterior cervical regions bilaterally and left axilla. Examination of the eyes was not remarkable except for dilated, full retinal veins with slight obscurement of the disc margins, the right more than the left. Mild papilledema was considered to be present. The skin over the chest was moderately dusky. Prominent, dilated tortuous veins were present over the upper anterior and posterior chest. The direction of blood flow was downward. The veins of the upper extremities were also markedly dilated. Heart, lungs and abdomen were normal to physical examination. Blood-pressure, 140/80. Examination of the lower extremities revealed no abnormalities and there was no adenopathy noted except as above described. Neurological examination was normal.

Laboratory: RBC. on admission, 4,600,000; hemoglobin, 15.1 gms.; sedimentation rate, 70 mm. in 1 hour; (Westergren) WBC., 7100; differential-neutrophils, 81; lymphocytes, 14; monocytes, 5. Urinalysis revealed a specific gravity of 1.028 with 3-4 WBC./hpf. No albumen or sugar were found. Bone marrow aspiration revealed a normal marrow picture.

X-rays: Chest plate (Fig. 1), revealed a scalloped substernal shadow in the supracardiac area, the cephalad portion being slightly wider than the caudad. Lateral view showed this to lie towards the anterior portion of the thoracic cage. There was a slight concavity on the anterior surface of the trachea.

Course in Hospital: Following admission venous pressures in the upper extremities were found to be 54 cm. of water. A lymph node was removed from the left axilla and the pathological report was chronic lymphadenitis. Two days later he developed marked pain, tenderness, redness and swelling of the entire left upper extremity. This was considered to be on a basis of thrombophlebitis and was successfully treated by elevation and anticoagulant therapy. A



Figure 1

course of nitrogen mustard therapy then was given and repeat X-ray revealed a minimal increase in the size of the mediastinal lesion. Venous pressure after therapy was recorded as 52 cm. of water. Bronchoscopy revealed normal findings except for slight deviation of the carina to the right. Papanicolaou smear was negative for tumor cells. The patient's condition remained essentially unchanged and he was transferred to the U. S. VA Hospital, West Roxbury, Massachusetts, for X-ray therapy. At this latter hospital biopsy of a cervical lymph node was attempted but profuse bleeding prohibited adequate surgical dissection and no tumor tissue was obtained. The patient was then given a course of X-ray radiation to his upper mediastinum and had considerable improvement in his orthopnea with decrease in venous pressure. After therapy chest plate showed only very slight decrease in the size of the superior mediastinal mass. On January 22, 1951, a left supraclavicular node was biopsied. The pathological report revealed an undifferentiated malignant tumor, probably carcinoma simplex. The stomach was suggested as a primary site, yet G.I. series was normal. A course of X-ray was then given over the mediastinal area and the patient started on a downhill course associated with the development of a left hemiplegia. Patient became depressed and anxious to return home. A new metastatic nodule was noted in the left groin.

The patient was then transferred back to the VA Hospital, Togus, Maine, where he rapidly went downhill and expired on March 5, 1951.

The pertinent findings at autopsy were as follows:

"In the superior mediastinum is a mass composed of tumor tissue and lymph nodes. The mass completely surrounds and compresses the vessels in the superior mediastinum — near the bifurcation of the left main bronchus is a tumor mass which surrounds and encroaches upon it. This mass extends into the mediastinum and involves the lymph nodes. It extends upward slightly above the left sterno-clavicular junction and completely fills the mediastinal cavity. Section of the tumor mass shows that it reaches to the lower pole of the thyroid gland which apparently is not involved in the process. The right jugular vein seems completely occluded by a thrombus. — The right adrenal gland is enlarged and is enclosed in nodules of apparently metastatic tissue. The grayish-brown tumor tissue extends to the cortex of the adrenal gland. Brain: Approximately normal in size. External configurations of brain within normal limits. Left lateral aspect of the left parietal lobe shows an area of softening with almost complete perforation of brain substance. The medial aspect of right parietal lobe presents a nodule 2 cm. in diameter which is grayish-white and friable. Sections of the brain reveal three areas of softening in the right basal ganglia, largest 1 cm. in diameter. Posterior to this the right centrum ovale shows a large area of hemorrhagic encephalomalacia measuring approximately $7 \times 4 \times 3$ cm. and involves the greater portion of the parietal lobe. On the left a similar area of encephalomalacia, less hemorrhagic and measuring $6 \times 4 \times 2\frac{1}{2}$ cm., located laterally to the ventricle, is present."

It was the Pathologist's impression that the findings in the brain represented obstruction to the blood supply of long standing with terminal more complete obstruction and massive encephalomalacia.

Microscopic: Microscopic sections of the tumor mass revealed a rather undifferentiated epithelial tumor apparently arising from the bronchus. "The tumor is composed of groups of polygonal dark, basic-staining cells with hyperchromic nuclei and numerous scattered mitoses. There is also a large amount of fibrous stroma in addition to the tumor cells. Sections of the right kidney reveal some metastatic tumor. Sections of the right adrenal mass reveal metastatic tumor lesion with lymph node involvement but no actual invasion of the adrenal structure. These metastatic lesions are composed of cells similar to the tumor described above." Primary site of this lesion was considered to be most probably bronchogenic.

Symptoms:

The signs and symptoms depend on three factors — the degree of occlusion, the rapidity of development and the presence or absence of a collateral circulation. There are three outstanding features of this

syndrome — cyanosis, edema and the development of a collateral venous route.

The cyanosis is characteristic in being localized exclusively to the upper half of the body while the lower half contrasts by its pallor. The lips, cheeks, ears, nails, neck and thorax exhibit it most markedly and the intensity and extension vary with the degree of stenosis and the mode in which it progresses. Sometimes cyanosis is the only sign to be found. It may come on gradually or suddenly when the subject has been enjoying good health, this being an indication of a topographic change, or a rapid increase in size of the process due to a hemorrhage or sudden failure in resistance of the vascular wall. It may also be influenced by posture, coughing and emotional upsets.

The edema is also characteristically located in the upper half of the body and occasionally in the lumbar region. Its manner of appearance is the same as that of the cyanosis. It may localize in the neck and never transgress this region and its disappearance may be sudden or gradual depending on the establishment of a collateral circulation and the improvement or cure of the mediastinal process.

Development of a collateral venous circulation is indicated by distention of the veins of the upper body with distention and tortuosity of the veins of the anterior and lateral chest wall and over the abdomen. This is to be distinguished from unilateral venous engorgement resulting from unilateral occlusion of the axillary or subclavian vein. The Lateral Thoracic Vein on each side is especially prominent.

Other symptoms found in this condition are buzzing in the ears, headache, swelling of the face and neck, bulging eyes, deafness, papilledema, somnolence, machinery-like noises in the head, epistaxis and rarely hemoptysis. According to Oschner and Dixon, during the height of the obstruction before a collateral circulation has developed these patients are likely to assume orthopneic positions consisting of sitting up and arching the trunk slightly forward.

Soloff describes a case at the Temple University Hospital which vividly describes this syndrome and closely compares with description of all other cases reported.

A middle-aged man was hospitalized complaining of buzzing in both ears. His face and neck were swollen to one and one-half times normal size and had taken on a darkish color. His eyes became prominent and subjectively there were machinery-like noises in his head. The buzzing in his ears was synchronous with the heart beat, improved with rest or lying down, and was exaggerated by exercise, assuming the upright position and emotional upsets.

Physical examination revealed engorgement of all the head and neck veins and tortuosity of the veins

of the upper extremity, anterior and lateral chest walls and veins over the abdomen. The Lateral Thoracic Vein on both sides was especially prominent and emptied into the superficial epigastric veins even in the recumbent position with the pelvis elevated. Venous pressure in the arms was markedly elevated.

Causes: The following conditions have been found to be causative factors in this syndrome:

Aneurysm of the aorta — Compressing or rupturing into it.

Mediastinal tumors — Lymph node enlargement due to metastatic carcinoma, Hodgkin's disease, Syphilis, Tuberculosis, non-specific granuloma, cysts, etc.

Thyroid enlargement.

Thymus enlargement.

Mediastinitis.

Pericarditis with or without effusion.

Trauma (due to hemorrhage).

Thrombosis.

A case is also described in the literature presumably due to emphysematous bleb formation.

Oschner and Dixon reviewing cases of thrombosis of the superior vena cava found one hundred twenty cases and in all of these the diagnosis was definitely proved.

Approximate etiological causes were:

29%—35 cases were due to external compression. Of these 18 cases were due to mediastinal neoplasm and the remaining were due to aneurysm of the aorta.

23%—were due to mediastinitis.

36%—44 cases were due to phlebitis. Of these 20 were classed as idiopathic, 12 due to syphilis, 4 due to tuberculosis, 7 pyogenic and 1 due to trauma.

10%—were due to unknown or unstated causes.

Hinshaw reviewed the literature from April, 1939, to June, 1947, and found 125 reported cases caused by the following:

TABLE I

Cause	Cases	Per Cent of Total
Carcinoma of the bronchus (bronchogenic) with mediastinal metastasis	20	16
Lymphoblastomas (including Hodgkin's disease)	15	12
Aortic aneurysm (syphilitic)	29	23.2 (total)
(a) Due to pressure from aneurysm	14 cases (11.2%)	
(b) Rupture into superior vena cava	14 cases (11.2%)	
(c) Dissecting aneurysm (arteriosclerotic)	1 case (0.8%)	
Metastatic carcinoma to mediastinum (excluding bronchogenic)	9	7.2 (total)
(a) Carcinoma of thyroid		
4 cases (3.2%)		
(b) Others from various sources		
Primary mediastinal tumors (two of these were considered to be malignant tumors)	4	3.2
Mediastinitis	5	4 (total)
(a) Tuberculosis	2 cases (1.6%)	
(b) Syphilitic	2 cases (1.6%)	
(c) Pyogenic	1 case (0.8%)	
"Mediastinal fibrosis"	11	8.8
Thrombosis of superior vena cava (excluding those cases due to invasion of the vein by malignant tumors)	17	13.6

Miscellaneous causes	15	12.0 (total)
(a) Undetermined (so classified by those who reported them)		
1. Mediastinal mass present		
4 cases (3.2%)		
2. No mediastinal mass		
4 cases (3.2%)		
(b) Acute leucemia (lymphocytic)		
3 cases (2.4%)		
(c) Pericardial constriction (pericarditis)		
2 cases (1.6%)		
(d) Pneumothorax (2-months-old infant)		
1 case (0.8%)		
(e) Mitral stenosis — left auricular dilatation and superior vena caval compression		
1 case (0.8%)		
	125 (total)	100 (total)

Underlying anatomy and collateral circulation

The changes in venous return in this condition have been studied by means of phlebography, by examination of autopsy material and by experiments on live dogs. Katz, Hussey and Veal describe the process of using radio-opaque material to visualize the abnormal venous channels. Work by K. Wagner on autopsied subjects demonstrates the same process and closely agrees with Carlson's experiments on dogs. The later work consisted of producing obstruction of the superior vena cava above and below the azygos vein.

The first procedure was well tolerated by the dogs but the second i.e., obstructing below the azygos, was not tolerated in one stage. The syndrome could be produced however in two stages, first occluding above the azygos and then obstructing the azygos itself.

Circulation studies with contrast media and X-rays demonstrated that when obstruction took place above the azygos, the signs of collateral circulation were different from those with lower obstruction. Carlson noted marked cyanosis of the upper part of the body at first, and then with development of the collateral circulation it slowly disappeared. The animals appeared healthy and the venous pressures of the obstructed area tended to return to normal or to be only slightly elevated.

I. *With obstruction above the azygos*, this pathway and its tributaries, became markedly distended and were the principal channels of return of blood from the upper part of the body. The following networks were made out.

Superficial veins — The axillary vein tributaries, chiefly the thoracoepigastric, join a superficial plexus over the thorax and abdomen. The cervical superficial veins anastomose with those of the thorax and

the return of blood to the heart is by way of the intercostal veins and the azygos. Communication with the superficial epigastric and superior and inferior epigastric veins permit a return through the femoral and external iliac veins but this pathway is not well developed when the obstruction is above the azygos.

Deep veins — The internal mammary veins anastomose with the intercostals, the anterior mediastinal and superior epigastric veins permitting return of blood to the heart.

Mediastinal veins form a plexus composed of the anterior mediastinal, posterior mediastinal and pericardial veins to enter the superior phrenic veins, tributaries of the inferior vena cava.

Paravertebral veins communicate above with the dural sinuses and vertebral veins, below with the intervertebral and intercostal veins.

There is a deep plexus of veins of the back formed by posterior rami of intercostal veins, descending branches of transverse cervical and trans-scapular veins.

Lumbar, abdominal and suprarenal veins communicate with superficial and deep veins of the back and with the abdominal wall emptying into the inferior vena cava.

Superior intercostal veins, other intercostals, accessory hemiazygos, hemiazygos and azygos form an important channel of collateral circulation.

II. *With obstruction including the azygos vein:*

Superficial veins were prominent over the chest and abdomen beginning in the axilla and terminating below in the superficial epigastric vein, a tributary of the femoral vein.

Deep veins — The internal mammary and superior and inferior epigastrics form a pathway from the

innominate vein above to the external iliac vein below.

Pericardial and anterior and posterior mediastinal veins form a well-developed plexus traversing the mediastinal space.

Vertebral venous plexuses are extensively developed, particularly the internal vertebral plexus which may be traced clearly from the cervical to the lumbar region, the intervertebral, intercostal, and lumbar veins anastomosing with this plexus.

Deep collateral veins of the back are present but not prominent — they may be traced down the lumbar region.

Suprarenal, lumbar, and abdominal veins of the dog communicate with deep and superficial veins of the lumbar region and enter the inferior vena cava.

The azygos system being obstructed it is diminished in size and the flow of blood through it is apparently reversed.

In summary of this experiment — when obstruction was made above the azygos vein this channel formed the chief venous route for the return of blood to the heart from the upper parts of the body. When the azygos was occluded the superficial and deep abdominal veins and the vertebral plexus are the channels of importance. Wagner in his cadaver work found renal and internal spermatic veins are important collateral pathways but these are not demonstrable in the dog. He also added that the superficial dorsal thoracic veins were more prominent when the obstruction was below the azygos vein than when the obstruction was above. These vessels are not well developed in the dog.

Diagnostic Aids:

Diagnosis is made from the history and physical examination, the findings being as previously described. There are two diagnostic aids of utmost importance — the measurement of the venous pressures in the upper and lower extremities, and phlebography.

The venous pressure determinations are best made by direct method as reviewed by Jeghers and Hussey. With obstruction of the superior vena cava the venous pressure is elevated in both arms while non-elevated in the lower extremities. Phlebography, by producing X-ray visualization of the veins, offers a method unequalled by other techniques for demonstrating and localizing lesions and obstruction of the vena cava and plotting out the extent and distribution of the collateral venous circulation. The technique is simple using Thorotrast, 35% Diodrast or 70% Diodrast, 15 to 30 cc. of the solution being injected into the veins of the antecubital fossa or external jugular vein.

Prognosis and Treatment:

The ultimate prognosis of this condition is usually unfavorable due to the seriousness of the common

causative factors. As to the immediate outcome it is said that 75% die during the acute stage of the disease and if this is survived the resultant general condition will depend on the collateral circulation. The condition itself is not incompatible with life. Blasingame's patient lived to be ninety-three years of age.

As to treatment — the underlying pathology will determine this. X-rays if a sensitive tumor is found, ACTH, nitrogen mustard, et cetera, mediastinotomy in some cases, and lumbar puncture may be of some value in relieving the symptoms of increased intracranial pressure. Oschner and Dixon believe that mediastinotomy is of value in cases of mediastinitis in which there is cicatricial narrowing of the vena cava, even though it may be thrombosed. Ehrlich, Ballon and Graham claim that in cases with compression by a tumor by outside pressure distressing symptoms may be alleviated with a mediastinal decompression provided that the tumor is not encircling the vein and that the vessel lumen is not blocked or thrombosed. If and when a collateral circulation is established usually no treatment is instituted except diminishing activity and moderate sedation.

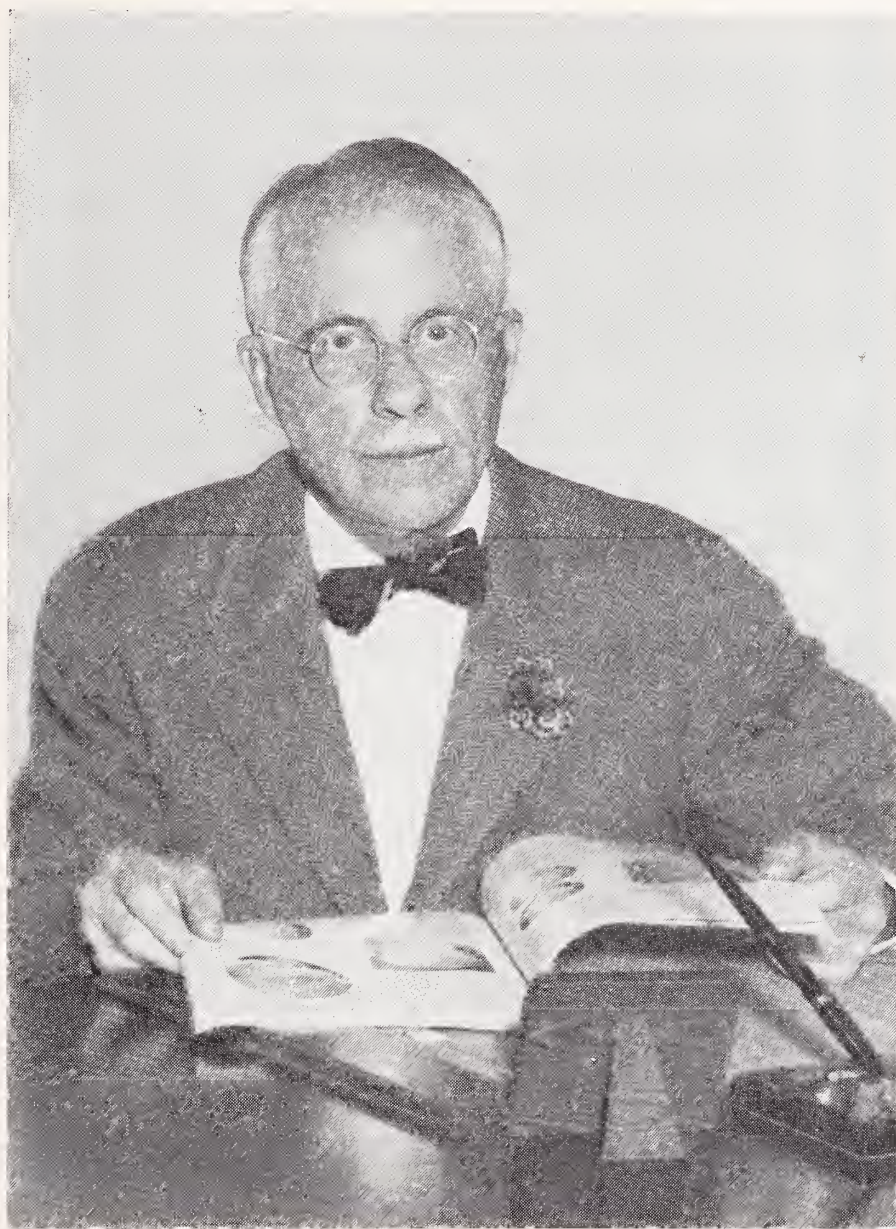
Summary:

In summary the syndrome of Superior Vena Cava obstruction has been reviewed and a case has been reported. The cardinal signs and symptoms have been presented, namely, edema and cyanosis of the upper half of the body, and the development of a collateral venous circulation. Mention has been made of the pathways of this collateral route varying with the localization of the obstruction above and below the level of the azygos vein. Diagnostic aids have been considered and finally the prognosis and treatment of the pathological condition.

REFERENCES

- Ehrlich, Ballon and Graham: Syndrome of Superior Vena Cava Obstruction with mediastinal compression, *J. Thor. Surg.*, 3:352, 1934.
- Oschner and Dixon: Superior Vena Cava thrombosis, *J. Thor. Surg.*, 5:641, 1936.
- Hinshaw and Rutlege: Unpublished data.
- Soloff: Syndrome of Superior Vena Cava obstruction, *A. Heart Jour.*, 3:18, 318-328, Sept., 1939.
- Carlson: Obstruction of the Superior Vena Cava Experiment. Study, *Arch. Surg.*, 29:669, 1934.
- Blasingame: Thrombotic occlusion of the Superior Vena Cava with est. collat. circulat., *Arch. Path.*, 25:361, 1938.
- Katz, Hussey and Veal: Phlebography for the study of obstruction of veins of the Superior Vena Cava system, *Am. Jour. Med. Sc.*, 214:7-22, July, 1947.
- Hussey and Jeghers: Practical considerations of venous pressure, *N. E. J. M.*, 237:812-818, Nov. 27, 1947.
- Hinshaw: Obstructions of the Superior Vena Cava, *A. H. J.*, Vol. 37, May, 1949, 958.

(The pathological data was furnished for this article by Pathologists, Dr. Edward Foote and Dr. I. Goodof.)



C. HAROLD JAMESON, M. D.
President, Maine Medical Association
1951 - 1952

C. HAROLD JAMESON, M. D.

President, Maine Medical Association

1951 - 1952

Dr. Jameson, assumed his duties as President of the Maine Medical Association, Tuesday, June 19, at the close of the 97th annual session.

Dr. Jameson has practiced General Surgery in Rockland, Maine, since 1922. He was graduated from Harvard College in 1916, received his medical degree from Harvard Medical School in 1919 and was located at the Peter Bent Brigham Hospital from 1919 to 1922 as intern and Assistant Resident.

He is a member of the American College of Surgeons, a Diplomate in Surgery, a member of the Knox County Medical Society, Maine Medical Association, American Medical Association, New England Branch American Urological Association and New England Surgical Society.

He served as Councilor for the Third District of the Maine Medical Association from October, 1941, to June, 1950, when he was elected President-elect, as Council Chairman for one year and has been a member of the Editorial Board of the JOURNAL since 1938.

His wife is the former Priscilla Brewster. He has two sons; Brewster W., a graduate of Harvard College in 1950, now an Ensign in the United States Naval Reserve located at Treasurer Island, San Francisco, and Bradford, who has recently completed two years at Brown University, Providence, Rhode Island, and is about to enter the United States Navy.

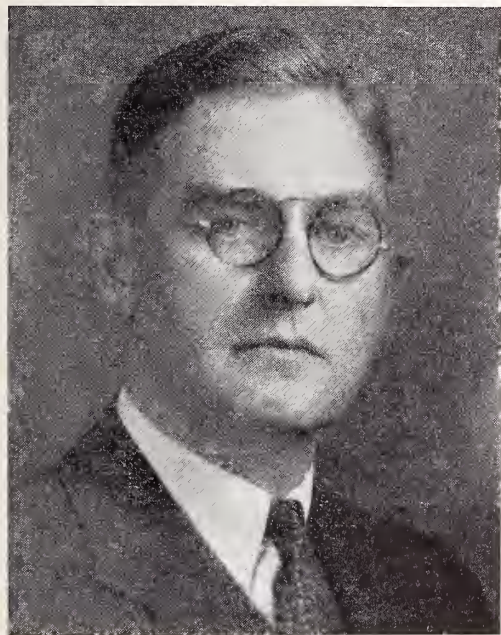
Dr. Jameson's four-point program for 1951-1952, which he outlined at the close of the annual banquet in June, will be found elsewhere in this issue of the JOURNAL. Let's make a concerted effort to help him carry out this program.

Maine Medical Association Officers Elected

at the
97th ANNUAL SESSION

POLAND SPRING

JUNE 17, 18, 19, 1951



EUGENE H. DRAKE, M. D., Portland
President-elect



NORMAN H. NICKERSON, M. D., Greenville
Council Chairman, 1951-1952



WILLIAM F. MAHANEY, M. D., Saco
Councilor—First District, 1954



CURRIER C. WEYMOUTH, M. D., Farmington
Councilor—Second District, 1954

EDITORIALS

Dr. Frederick R. Carter Resigns As Secretary-Treasurer-Editor

Dr. Carter, who has served as Secretary-Treasurer of the Association since 1937 and as Editor of the JOURNAL since 1941, resigned June 19, 1951, because of ill health.

Dr. Carter was Councilor for the Fourth District when he accepted the appointment as Secretary-Treasurer. He had served as Secretary-Treasurer of the Kennebec County Medical Association for many years.

On behalf of the members of the Association we hereby express appreciation to Dr. Carter for his loyalty and devotion, a wish for complete recovery and many days of happiness ahead.

The Business Side of the Annual Session

The Ninety-seventh Annual Session of the Maine Medical Association was held at the Poland Spring House, June 17, 18 and 19, 1951, with a total registration of 549; 280 members, 97 Woman's Auxiliary members and 172 guests and exhibitors.

The scientific program, which was arranged by Dr. Franklin F. Ferguson, Chairman of the Scientific Program, has received some very favorable comment from many in attendance at the session. It would seem that Dr. Ferguson knew just how to mix his Out-of-State and State speakers to acquire the right dosage.

This is going to cover a few of the highlights of the business part of the meeting and start off with the budget for 1951-1952.

The budget, which follows, was drawn up by the Council on April 14, 1951, at a meeting in Pittsfield and presented to the members of the House of Delegates in session that same day, in order that they would have ample time to study it prior to the annual session, (and in accordance with the revised By-Laws "at least sixty (60) days before the opening of the annual session").

Office of Secretary-Treasurer :

President's Expenses	\$ 425.00
Salaries :	
Secretary-Treasurer-Editor	4,500.00
Assistant Secretary	3,000.00
Expenses :	
Travel—Secretary-Treasurer	200.00
Office	1,500.00
Committees :	
Medical Advisory	1,000.00
Special	200.00

Maine Medical Council and Delegates to New England Medical Societies	500.00
American Medical Association Delegate, Annual and Interim Session	500.00
Clinical Session (M. M. A.)	200.00
Council New England State Medical Societies, Annual Dues	100.00
	<hr/> \$12,125.00
Office of Executive Secretary :	
Salaries :	
Executive Secretary	\$7,000.00
Secretary	2,200.00
Expenses :	
Travel, Office, etc.	3,500.00
State Committee—National Education Campaign	500.00
	<hr/> \$13,200.00
THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION	\$ 4,000.00
Total Council recommended budget	<hr/> \$29,325.00

Following some discussion the above budget was approved at the First Meeting of the House of Delegates on June 17th.

The authorized expenditures are changed, however, by these occurrences subsequent to the House of Delegates' meeting: Dr. Carter's resignation; salary increase of \$500.00 to Mrs. Kennard as Acting Secretary-Treasurer, "until the Council has the opportunity to study carefully such reorganization of these duties as Dr. Carter's retirement makes necessary," and Council approval of a \$300.00 expenditure to further the study of a Medical School for Maine. Consequently your budget for 1951-1952 now stands at \$25,625.00.

The JOURNAL was also the subject of much discussion at the First Meeting of the House and a suggestion made by Dr. Paul S. Hill was referred to the

Reference Committee, appointed by Dr. C. Harold Jameson, President-elect, and consisting of the following members: Dr. George L. Maltby, Portland, Chairman; Dr. Romeo A. Beliveau, Lewiston; Dr. Harry G. Tounge, Camden; Dr. Carl H. Stevens, Belfast; Dr. James H. Crowe, Ellsworth, and Dr. Clyde I. Swett, Island Falls.

At the Second Meeting of the House of Delegates on Monday, June 18th, the report of the Reference Committee relative to the JOURNAL was presented by Dr. Clyde I. Swett and the recommendations of the committee approved. Following is Dr. Hill's suggestion and the recommendations of the Reference Committee:

If \$2.00 is included in the annual dues for subscription to the MAINE MEDICAL JOURNAL, then the \$2.00 might be removed, so that the annual dues would be \$33.00, and then for the subscription to the JOURNAL we could ask for \$3.00 to \$5.00, thereby removing this item of expense from the budget and placing the JOURNAL on a separate subscription basis.

Reference Committee recommendations:

1. That there should be no change in the annual dues at the present time.
2. That since the MAINE MEDICAL JOURNAL is the official organ of the Maine Medical Association, it should continue to be included in the annual membership fee of the Association.
3. That such amount as is allocated in the annual dues for subscription to the JOURNAL be set up as a separate account on the Treasurer's books, and that all direct expenses of the JOURNAL be debited to this account.
4. That the Council should continue its cost analysis of the JOURNAL and make every effort to reduce its printing costs.
5. That the Council should also include a study and an analysis of present business procedure

and office routine, in the publishing of the JOURNAL.

6. That increased efforts, and more efficient organization be set up in the office to promote the procurement of a greater volume of advertising, to offset publishing costs.

At this same meeting, Dr. William F. Mahaney of Saco was elected Councilor for the First District, and Dr. Currier C. Weymouth of Farmington, Councilor for the Second District.

It would be impossible to cover all the proceedings at these two meetings in a single issue of the JOURNAL. Briefly reports were presented by Dr. Eugene H. Drake, Council Chairman 1950-1951, Dr. Martyn A. Vickers, Delegate to the American Medical Association, Mr. W. Mayo Payson, Executive Secretary, various Committee Chairmen and Delegates to New England Medical Society meetings. The report of the Nominating Committee, which drew up a slate of Standing Committee members for 1951-1952, is published elsewhere in this issue of the JOURNAL. Recommendations relative to the report of the Committee on Maternal and Child Welfare presented by the Reference Committee were approved and a copy is being sent to the Chairman of that Committee.

The Council, in an effort to cut down the cost of the JOURNAL, has voted to print the report of the Proceedings of the House of Delegates, June 17 and 18, in pamphlet form and a copy sent to any member desiring same. You will hear more about this at a later date.

In closing, just a word about the Exhibitors. Forty-two companies were represented this year—the largest on record. We could not hold these fine sessions without the help of these friends, some of long standing, a few brand new. Please show these company representatives any courtesy you can if and when the opportunity presents itself.

Election of President-elect

Dr. Eugene H. Drake of Portland was unanimously elected President-elect of the Maine Medical Association, Monday, June 18, at the close of the first General Assembly.

There isn't much that one can say about this man that you have elected President-elect, that his service to the Association hasn't already said for him; as

Councilor for the First District, Chairman of the Health Insurance Committee and Chairman of the Medical School for Maine Committee. Dr. Drake has also been President of the Staff of the Maine General Hospital and its Associate Chief of Medical Service.

A MESSAGE FROM YOUR PRESIDENT

I hope the 98th year of our history will witness in particular:

1. Continued improvement in our already excellent Public Relations.
2. Growing interest in Medical education and in the particular matter of the establishment of a Grade A Medical School in Maine be it only the first two years.
3. Increasing support for and participation in the Blue Shield Plan by our individual members.
4. Generous and wide response by our individual members to the plea for support of the American Medical Education Foundation, remembering the eloquent appeal voiced by Dr. John Cline, the National president.

C. HAROLD JAMESON, M. D.,
President, Maine Medical Association.

EXECUTIVE SECRETARY

Perhaps You Hadn't Noticed

Mr. Oscar Ewing is recommending that the President include in his program a plan which would provide hospitalization insurance up to 60 days a year for persons 65 years of age and older and dependents of deceased persons insured under the Old-Age and Survivors' Insurance system.

He says that there is plenty of money out of present social security deductions to pay for this expanded program without added deductions or new tax revenues.

The legislation for it is not yet drafted and it is not anticipated that it will be in operation before 1953.

It will be available, however, as campaign material in 1952.

The spontaneous and prolonged ovation which the House of Delegates gave Gene Drake on his election as President-elect was heart-warming, and everyone says he deserves it.

President Cline of A. M. A. proved that if that organization is like him, it is truly democratic (in the better meaning of the word).

This is a good place to say that the Secretary's office would like to receive personal or organizational news and notes about members of component soci-

eties. Wouldn't you like to read the latest episode in the career of Dr. Pritham?

Retiring President Small showed real versatility as a speaker during the last session. In his address to the Assembly as he described his hopes and objectives for a medical school in Maine he was really eloquent; at the Tuesday night dinner he gave Arthur Godfrey real competition. And this after two nights with no sleep (because of something akin to an alarm clock over his head).

In case you filed it in the round file, our last bulletin contained the Rules and Regulations promulgated by the State Tax Assessor relating to medical matters.

One doctor opened and read it because he wrote us.

Have you joined the Marty Vickers Foundation for broken down automobiles?

Hopeful note. This page is not a permanent feature of your JOURNAL. The magazine is printed in multiples of four pages; material for one page was lacking; this roughage was used to fill that space.

THE 1951 ANNUAL SESSION GOLF TOURNAMENT

The golf tournament this year was the biggest ever and the prizes donated were better than ever.

Your committee is very grateful to the exhibitors and the Association for their splendid coöperation.

The winners, awards and donors of awards are listed as follows:

Gross

Dr. Francis A. Winchenbach, Binoculars — Surgeons' & Physicians' Supply Co.

Dr. John F. Reynolds, Kroflite Golf Balls — Winthrop-Stearns, Inc.

Dr. Lloyd Brown, Desk Lamp — E. F. Mahady Company.

Dr. Edmund N. Ervin, Ciba Certificates — Ciba Pharmaceutical Products, Inc.

Dr. Martyn A. Vickers, Barometer — Geo. C. Frye Co.

Dr. Harold E. Small, Penicillin — Wyeth, Inc.

Dr. Forrest C. Tyson, Head Covers — William S. Merrell Company.

Dr. George J. Robertson, Lanteen Certificates — Lanteen Company.

Net

Dr. William Spear, Desk Set — U. S. Vitamin Corp.

Dr. Stephen A. Cobb, Poker Chips — Maine Medical Association.

Dr. Thomas F. Fay, Seth Thomas Clock — P. J. Noyes Company.

Dr. Carl E. Richards, Trophy — Upjohn Company.

Dr. Raymond A. Tougas, Desk Set — The Borden Co., and Book — F. A. Davis Co.

Dr. Charles W. Kinghorn, Book — F. A. Davis Co.

Dr. Richard C. Wadsworth, Interval Timer — General Electric X-ray Corp.

Special

Dr. Irving I. Goodof, Leather Bag — Thomas W. Reed Co.

Mr. W. Mayo Payson — by Dick Tadgell.

Ladies

Mrs. Harold E. Small, Silver Plate — Maine Medical Association, and Golf Balls — DoHo Chemical Corp.

Miss Louise Trainor, Golf Umbrella — Lederle Laboratories.

Mrs. Thomas F. Fay, Silver Plate — Michael Salvetti.

Mrs. R. E. Murphy, Book Ends — Mead Johnson Company.

Mrs. Peter Aucoin, Clock — Mead Johnson Company.

Mrs. G. P. Sapiro, Golf Balls — Maine Medical Association.

FRANCIS A. WINCHENBACH, M. D.,
Chairman, Golf Tournament.

THE 1951 ART-HOBBY EXHIBIT

Following is the list of winners, prizes and donors of prizes for the first Maine Medical Association Art-Hobby Exhibit, held during the Ninety-seventh annual session at Poland Spring, June 17, 18 and 19, 1951.

Crafts — First: Dr. Harold S. Pratt, Livermore Falls, Weaving Loom — Leather Ash Tray Set, Maine Medical Association.

Second: Dr. Samuel L. Belknap, Damariscotta, Chair — Carton Philip Morris Cigarettes, Distributor.

Photography — First: Dr. Waldo A. Clapp, Lewiston — Tooled Leather Brush.

Second: Dr. David K. Lovely, Portland — Carton Philip Morris Cigarettes, Distributor.

Painting — First: Dr. Julius Gottlieb, Lewiston — Leather Desk Index.

The paintings of Dr. John Allen which had received awards at the American Medical Association Art Exhibit were on display. Really professional, they were viewed with great interest by the many visitors.

The judges, claiming no artistic ability, and ruled solely by what appealed to them, were:

Captain Frances Glessner Lee, Littleton, N. H.

Mrs. Harold Wahlquist, Minneapolis, Minnesota.

Mrs. Carl E. Richards, Alfred.

Mrs. Frank A. Smith, Westbrook.

Miss Evelyn Gilpin, Poland Spring.

Mrs. Clyde I. Swett, Island Falls, Chairman.

STANDING COMMITTEES

1951 - 1952

The Standing Committees for 1951-1952 were drawn up by the Nominating Committee, consisting of one delegate from each Councilor District, and accepted at the Second Meeting of the House of Delegates at the 97th Annual Session of the Maine Medical Association at Poland Spring, Maine, June 18, 1951.

NOMINATING COMMITTEE

First District, JOSEPH E. PORTER, M. D., Portland, *Chairman*.

Second District, WALDO A. CLAPP, M. D., Lewiston.

Third District, WESLEY N. WASGATT, M. D., Rockland.

Fourth District, CARL H. STEVENS, M. D., Belfast.

Fifth District, OSCAR F. LARSON, M. D., Machias.

Sixth District, HERBERT C. SCRIBNER, M. D., Bangor.

Scientific Committee

Loring W. Pratt, M. D., Waterville, *Chairman*

Robert W. Belknap, M. D., Damariscotta

Harry Brinkman, M. D., Farmington

C. Lawrence Holt, M. D., Portland

The Secretary, ex-officio

Public Relations Committee

Frederick T. Hill, M. D., Waterville, *Chairman*

M. Tieche Shelton, M. D., Augusta

Warren E. Kershner, M. D., Bath

Theodore C. Bramhall, M. D., Portland

Forrest B. Ames, M. D., Bangor

The Secretary, ex-officio

Committee on Medical Education and Hospitals

Waldo A. Clapp, M. D., Lewiston, *Chairman*

Clyde I. Swett, M. D., Island Falls

John R. Lincoln, M. D., Portland

Hugh A. Smith, M. D., Bangor

Irving I. Goodof, M. D., Waterville

The Secretary, ex-officio

Legislative Committee

P. L. B. Ebbett, M. D., Houlton, *Chairman*

James H. Crowe, M. D., Ellsworth

Roland L. McKay, M. D., Augusta

Francis A. Winchenbach, M. D., Bath

Charles W. Kinghorn, M. D., Kittery

W. Mayo Payson, Portland, Clerk

The Secretary, ex-officio

Medical Advisory Committee

Allan Woodcock, M. D., Bangor, *Chairman*

Carl M. Robinson, M. D., Portland

Frank A. Smith, M. D., Westbrook

Philip L. Gray, M. D., Blue Hill

Thomas A. Martin, M. D., Portland

Oscar F. Larson, M. D., Machias

Gerald H. Donahue, M. D., Presque Isle

The Secretary, ex-officio

Rural Health Committee

Norman H. Nickerson, M. D., Greenville, *Chairman*

Harry Brinkman, M. D., Farmington

Stanley R. Lenfest, M. D., Waldoboro

Wallace E. Viles, M. D., Turner

Storer W. Boone, M. D., Presque Isle

Harvey C. Bundy, M. D., Milo

W. Mayo Payson, Portland, Clerk

SPECIAL COMMITTEES

1951 - 1952

The following Special Committees for 1951-1952 were appointed by the President,
C. Harold Jameson, M. D., of Rockland.

Health Insurance Committee

Frank A. Smith, M. D., Westbrook, Chairman
Clyde I. Swett, M. D., Island Falls
Theodore C. Bramhall, M. D., Portland
Eugene E. O'Donnell, M. D., Portland
Kenneth W. Sewall, M. D., Waterville
Linus J. Stitham, M. D., Dover-Foxcroft
William V. Cox, M. D., Auburn
W. Mayo Payson, Portland Clerk

Committee on Blood Transfusions

Richard C. Wadsworth, M. D., Bangor, Chairman
Joseph E. Porter, M. D., Portland
Gilbert Clapperton, M. D., Lewiston
Gerald H. Donahue, M. D., Presque Isle
John F. Reynolds, M. D., Waterville

Diabetes Committee

Elton R. Blaisdell, M. D., Portland, Chairman
Charles W. Steele, M. D., Lewiston
Frederic B. Champlin, M. D., Waterville
Lyman O. Warren, M. D., Brewer
Charles W. Capron, M. D., Eastport
Gerald H. Donahue, M. D., Presque Isle

Arthritis Committee

Philip P. Thompson, Jr., M. D., Portland, Chairman
John O. Piper, M. D., Waterville
Robert O. Kellogg, M. D., Bangor
Robert A. Frost, M. D., Auburn

Committee on Mental Health

Margaret R. Simpson, M. D., Togus, Chairman
Amy L. Cattley, M. D., Lewiston
Gerald H. Donahue, M. D., Presque Isle
Byron V. Whitney, M. D., Portland
David Davidson, M. D., Portland

State Committee — National Education Campaign

Martyn A. Vickers, M. D., Bangor, Chairman
Francis A. Winchenbach, M. D., Bath
William F. Mahaney, M. D., Saco
Gerald H. Donahue, M. D., Presque Isle
Armand Albert, M. D., Van Buren
John F. Reynolds, M. D., Waterville

Committee on Conservation of Vision

Howard F. Hill, M. D., Waterville, Chairman
Paul Maier, M. D., Portland
Paul E. Floyd, M. D., Farmington
Otis B. Tibbetts, M. D., Auburn
Warren E. Kershner, M. D., Bath
Dexter J. Clough, 2nd, M. D., Bangor

Tuberculosis Committee

Wilbur B. Manter, M. D., Bangor, Chairman
William B. Grow, M. D., Fairfield
Francis J. Welch, M. D., Portland
Lester Adams, M. D., Hebron
George E. Young, M. D., Skowhegan
Edward A. Greco, M. D., Portland
Seth H. Read, M. D., Belfast
Dean Fisher, M. D., Lewiston
George C. Howard, M. D., Guilford

Amy W. Pinkham Fund Committee

Norman H. Nickerson, M. D., Greenville, Chairman
Virginia C. Hamilton, M. D., Bath
Albert M. Carde, M. D., Milo
Clair S. Bauman, M. D., Waterville
Thomas A. Foster, M. D., Portland
Ella Langer, M. D., Augusta

Veterans' Affairs Committee

Currier C. Weymouth, M. D., Farmington, Chairman
Elton R. Blaisdell, M. D., Portland
Francis A. Winchenbach, M. D., Bath
Edward H. Risley, M. D., Waterville
Philip O. Gregory, M. D., Boothbay Harbor
Wilfrid J. Comeau, M. D., Bangor

Committee on Civil Defense

Charles W. Steele, M. D., Lewiston, Chairman
Ralph A. Getchell, M. D., Portland
Harry Butler, M. D., Bangor

District Members:

1st, Albert W. Moulton, M. D., Portland, Deputy Chairman
2nd, Garfield G. Defoe, M. D., Dixfield
3rd, Frederick C. Dennison, M. D., Thomaston
4th, Harold E. Small, M. D., Augusta
5th, M. Allan Torrey, M. D., Ellsworth
6th, Richard C. Wadsworth, M. D., Bangor

Members at Large:

Roscoe L. Mitchell, M. D., Hallowell
Clark F. Miller, M. D., Auburn
Col. O. H. Stanley, M. C., Brunswick
Charles F. Branch, M. D., Auburn

Committee to Supervise Nurses' Attendants

Clyde I. Swett, M. D., Island Falls, Chairman
Foster C. Small, M. D., Belfast
Frank A. Smith, M. D., Westbrook
Currier C. Weymouth, M. D., Farmington
W. Mayo Payson, Portland Clerk

Committee on Graduate Education

Joseph E. Porter, M. D., Portland, Chairman
Charles F. Branch, M. D., Auburn
Lloyd Brown, M. D., Bangor
Milan A. Chapin, M. D., Auburn
William F. Mahaney, M. D., Saco
George L. Maltby, M. D., Portland
Richard C. Wadsworth, M. D., Bangor

American Academy of Pediatrics

Henry C. Thacher, M. D., Auburn

Committee on Social Hygiene

Oscar R. Johnson, M. D., Portland, Chairman
Donald L. Anderson, M. D., Lewiston
Carl E. Blaisdell, M. D., Bangor
Harold W. Stanwood, M. D., Rumford

Committee on Maternal and Child Welfare

Thomas A. Foster, M. D., Portland, Chairman
 Clair S. Bauman, M. D., Waterville
 Leroy C. Gross, M. D., Auburn
 Alice A. S. Whittier, M. D., Portland
 Virginia C. Hamilton, M. D., Bath
 Theodore M. Stevens, M. D., Portland

Cancer Committee

Joseph E. Porter, M. D., Portland, Chairman
 Magnus F. Ridlon, M. D., Bangor
 Forrest B. Ames, M. D., Bangor
 Romeo A. Beliveau, M. D., Lewiston
 John F. Reynolds, M. D., Waterville
 Gordon N. Johnson, M. D., Houlton

Committee on Industrial Health

Merrill S. F. Greene, M. D., Lewiston, Chairman
 Allan Woodcock, M. D., Bangor
 Ernest T. Young, M. D., Millinocket
 Albert P. Royal, M. D., Rumford
 Albert C. Todd, M. D., Brewer
 Frank W. Barden, M. D., Biddeford

Medical School for Maine

Eugene H. Drake, M. D., Portland, Chairman
 Frederick T. Hill, M. D., Waterville
 Donald F. Marshall, M. D., Portland
 Forrest B. Ames, M. D., Bangor
 Stephen A. Cobb, M. D., Sanford
 Foster C. Small, M. D., Belfast

HOSPITAL STAFF MEETINGS

Open to the Profession

CITY	HOSPITAL	DATE
Augusta	Augusta General Hospital	1st Wednesday
Bangor	Eastern Maine General	2nd Tuesday
Bath	Bath Memorial Hospital	1st Tuesday
Belfast	Waldo County	2nd Friday
Biddeford	Webber Hospital	2nd Thursday
Boothbay Harbor	St. Andrew's Hospital	4th Tuesday
Caribou	Cary Memorial	1st Wednesday
Damariscotta	Miles Memorial	2nd Thursday
Farmington	Franklin County Memorial	2nd Monday
Greenville	Charles Dean Hospital	2nd Wednesday
Hartland	Scott Webb Memorial Hospital	1st Wednesday
Lewiston	Central Maine General	2nd Thursday
	St. Mary's General	2nd Monday
Portland	Maine Eye and Ear Infirmary	1st Tuesday
	Maine General	2nd Friday
	Mercy	3rd Thursday
Presque Isle	Presque Isle General	1st and 3rd Tuesdays
Rockland	Knox County General	1st Monday
Rumford	Rumford Community	4th Wednesday
Sanford	Goodall Memorial	2nd Monday
Waterville	Sisters	2nd Tuesday
	Thayer	Every Thursday

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.



ALIDASE[®] IN SURGERY

Preoperative, Operative, Postoperative—

The complicating factors of venous thrombosis and "worn-out" veins have frequently made intravenous fluid administration a difficult and uncomfortable procedure.

The simplicity of subcutaneous fluid administration aided by Alidase (hyaluronidase) and the safety of this route make hypodermoclysis a valuable method for preoperative and postoperative fluid administration.

During surgery, Alidase-facilitated hypodermoclysis often offers the distinct advantage of permitting injection at a site remote from the surgical field and eliminates the cumbersome arm board. G. D. Searle & Co., Chicago 80, Illinois.



RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, Harry D. McNeil, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Androscoggin

The May meeting of the Androscoggin County Medical Society was held at 8.30 p. m., Thursday, May 24, 1951, in the Clinic Room of the Central Maine General Hospital.

Dr. Gilbert Clapperton reported for the special committee appointed at the April meeting to investigate the Red Cross Blood Procurement Program. Dr. Clapperton made for his committee the recommendation that the County Society endorse this program. It was voted to do so, and to instruct the delegates of this vote for their guidance when a similar question is presented to the House of Delegates at the Annual Meeting of the Maine Medical Association.

It was voted to hold the next meeting of the Society on the usual evening and at the usual time in September.

It was voted to authorize the president to appoint a committee to prepare plans for the Fall Clinical Session of the Maine Medical Association, to be held in Lewiston.

The programs for the April and May meetings consisted of a detailed and very valuable and important presentation of the current status of civil defense planning in Maine. This discussion was presented by Dr. Steele, Dr. Miller, Dr. Branch, Dr. Goodwin, and Mr. Lever, the State Deputy for Chemical Warfare Defense.

DEAN FISHER, M. D.,
Secretary.

Franklin

The Franklin County Medical Society and the Staff of the Franklin County Memorial Hospital held their annual Spring Institute of Medicine at the hospital on Wednesday, April 18, 1951. This was an all day meeting with Case Presentations in the morning. Dr. James Paterson of the New England Medical Center, Boston, led the discussion at the afternoon sessions.

Following a banquet in the evening at Voter's Dining Rooms, Dr. Foster C. Small, President of the Maine Medical Association, talked briefly relative to the problems facing Maine doctors today and Dr. James A. MacDougall, Councilor for the Second District, explained councilor duties.

Dr. Paterson, guest speaker of the evening, spoke on "Skin Manifestations of Internal Disease," and showed slides on the "Use of Cortisone in Certain Skin Diseases."

PAUL E. FLOYD, M. D.,
Secretary.

Kennebec

A regular county meeting of the Kennebec County Medical Association held at the Augusta House, Augusta, Maine, May 17, 1951, began with dinner served to thirty-two members and guests at 7.15 p. m.

In the absence of President Harlow, Vice President Francis H. Sleeper took the chair for the evening. The record of the previous meeting was read and approved.

George I. Gould, M. D., of Richmond, was elected to membership.

Dr. Sleeper then called on Foster C. Small, M. D., of Belfast, President of the Maine Medical Association, who addressed us with a few well chosen words.

Dr. Sleeper introduced Richard C. Ford of Boston whose subject was "Unexpected Deaths in Infants." He, in his discussion illustrated by colored slides, referred to the unexpected infant deaths usually labeled smothering or suffocation—said it is virtually impossible for a baby to smother in its crib on a sheet or blanket—most such deaths are acute infections—viruses or bacterial, i.e. hemolytic streptococcus, meningococcal bacteremia, virus—accidental cases are due to balls

and marbles ($\frac{1}{2}$ to $\frac{3}{4}$) quite fatal—or food pieces—celery, cucumber, etc., plugging the windpipe—also head injuries, they fracture easily; other head conditions are vaccinia encephalitis (virus activating latent virus) meningitis of general bacteremia. A study is being made of infant deaths at Boston, Baltimore, Queens Co., New York, and Cleveland,—the material sent to the children's bureau at Bethesda, Maryland, and the Public Health Service. After some questions and discussion the meeting adjourned.

A. H. MORRELL, M. D.,
Secretary.

Piscataquis

A meeting of the Piscataquis County Medical Association was held at Dr. George Howard's camp on Whetstone Pond, in Blanchard on May 24. All active members and one senior member were present.

A. M. Carde, M. D., of Milo, was elected alternate delegate to the Maine Medical Association to fill the vacancy caused by the death of Guy Dore.

A committee was appointed to draw up resolutions on the death of Guy Dore. They submitted the following:

Whereas, the Divine Maker in His infinite wisdom has taken from us our beloved Brother, Guy E. Dore;

Be it resolved, that in Dr. Dore's death the medical profession has lost a brother whose high ideals, devotion to duty, and sympathetic understanding of human nature were an inspiration to us all.

Resolved, that the Piscataquis County Medical Association has lost a true and trusted member whose presence with us will be greatly missed.

Resolved, that a copy of these resolutions be sent to the Maine Medical Association, and a copy spread upon the records of our Association and a copy sent to Dr. Dore's widow

N. H. NICKERSON, M. D.,
Secretary.

Waldo

The Waldo County Medical Society met at the Windsor Hotel, Belfast, Monday evening, May 14th, with Dr. A. O. Stein presiding.

The speaker of the evening was Dr. Warren Bennett of the Pratt Diagnostic Hospital. His subject, ACTH and cortisone was very well presented and he showed an excellent understanding of the use of these agents. The interest of the members was evidenced by the discussion which followed.

Voted to hold the next meeting in July.

On the question of Blue Shield, our delegate was instructed to vote in favor of it at the annual meeting of the House of Delegates.

The question of availability of druggists on nights, Sundays and holidays, was brought up, and Dr. E. W. Stein was appointed a committee of one to interview the local druggists and see if an arrangement can be made to have at least one available at all times.

R. L. TORREY, M. D.,
Secretary.

Washington

A regular meeting of the Washington County Medical Society was held Wednesday, June 13, at the Congregational-Christian Vestry, Lubec, Maine, with fifteen members and guests present.

Following an excellent lobster dinner prepared by the Ladies' Social Union of the Church, Dr. Herbert S. Everett of St. Stephen, N. B., president of the Washington County Medical Society, presided at a business meeting.

Dr. Robert G. MacBride of Lubec, spoke relative to a meeting of delegates held in Pittsfield about the Blue Shield plan. They were in favor of more representation of M. D.'s on the Blue Shield board of directors. It was voted to instruct our delegate to vote in favor of more representation and also against reduction of fees to non-members.

A report from the Pine Tree Society for Crippled Children was brought to the attention of the members.

The following were elected to the committee on Diabetes; Dr. Charles W. Capron, Eastport, Chairman; Dr. Herbert S. Everett, St. Stephen, N. B.; and Dr. Karl V. Larson, East Machias.

Dr. Everett then introduced Dr. Carl Irwin of Bangor, Maine, who spoke on Traumatic Injuries to the Head and Spinal Cord. Dr. Irwin gave a very informative talk on the present day treatment of head and spinal injuries covering the methods used for simple concussion to compound fractures and lacerations of the brain structure. He stressed the importance of considering the patient as a whole and brought forth the fact that many of the head injury patients die from pneumonia, urinary infection or other injuries rather than the head injury. This was followed by a round table discussion.

Members were invited to attend the clinical sessions of the New Brunswick Medical Society at St. Andrews, September 5-8, 1951.

Members of the Washington County Woman's Auxiliary were present as guests.

KARL V. LARSON, M. D.,
Secretary.

HOSPITAL NOTES

Franklin County Memorial Hospital

The regular monthly meeting of the Staff of the Franklin County Memorial Hospital was held at the Nurses' Home, Monday evening, May 14, 1951. Ten members and two guests, Dr. Arch H. Morrell, Augusta, and Dr. George L. Maltby, Portland, were present.

The subject for the evening discussion on "Treatment of Head Injuries" was ably presented by Dr. Maltby.

PAUL E. FLOYD, M. D., *Secretary,*
Franklin County Memorial Hospital Staff.

TREASURER'S REPORT

To the Officers and Members of the Maine Medical Association:

The books of the Association and JOURNAL were closed and audited as of May 31, 1951, by Jordan and Jordan, Accountants and Auditors, Portland, who state that "the same are complete and correct in all details of record," and submitted the following statements "properly drawn up to show the true financial position of the Association, May 31, 1951, and the income and expense for the year under review."

FREDERICK R. CARTER, M. D.,
Treasurer.

BALANCE SHEET, MAY 31, 1951

ASSETS

Cash in Banks	\$22,494.85
Accounts Receivable:—	
Dues	\$630.00
Advertising	696.55
	<hr/>
Securities	1,326.55
Furnishings and Equipment	9,805.00
Deferred Expenses—Annual Meeting	1,092.59
Advance Payroll	66.87
Trust Fund Investments	76.92
Canal National Bank — A. M. A. Assessment Fund	3,290.48
	<hr/>
50.00	
Total Assets	<hr/>
	\$38,203.26

LIABILITIES

Accounts Payable	\$ 851.78
Social Security and Withholding Taxes ..	365.70
Deferred Income — Convention Exhibit Space	1,230.00
	<hr/>
Total Liabilities	2,447.48
Assets in Excess of Liabilities	<hr/>
	\$35,755.78

CAPITAL AND FUNDS

Capital Account	\$32,415.30
Trust Funds	3,290.48
A. M. A. Assessment Fund	50.00
	<hr/>
Total Capital and Funds	<hr/>
	\$35,755.78

CAPITAL ACCOUNT

Balance—June 1, 1950	\$37,243.08
Add:—	
N. E. Council, Charged Off May 31, 1950—budgeted for year ended May 31, 1951	\$100.00
Refund—Health Council of Maine—Charged Off May 31, 1950	100.00
	<hr/>
	200.00
	<hr/>
	\$37,443.08
Deduct:—	
Expense in Excess of Income — One Year	5,027.78
	<hr/>
Balance—May 31, 1951	<hr/>
	\$32,415.30

TRUST FUNDS AND INVESTMENTS

Prince A. Morrow Trust:—	
12 Shares American Agricultural Chemical Co. (Cost)	\$ 348.00
Canal National Bank — Savings No. 3905	1,714.73
	<hr/>
	\$2,062.73
Thayer Library Trust:—	
Canal National Bank — Savings No. 3903	
	<hr/>
	1,227.75
Total Trust Fund Investments	<hr/>
	\$3,290.48
Trust Funds:—	
Prince A. Morrow Fund:—	
Principal	\$ 554.94
Income	1,507.79
	<hr/>
	\$2,062.73
Thayer Library Fund:—	
Principal	\$1,154.20
Income	73.55
	<hr/>
	1,227.75
Total Trust Funds	<hr/>
	\$3,290.48

STATEMENT OF REVENUE AND EXPENSE
ONE YEAR ENDED MAY 31, 1951

REVENUE

Dues	\$23,012.50
Income from Investments	520.80
State JOURNAL Advertising Bureau	6,927.72
Local Advertising	779.28
Subscriptions and Sales of JOURNALS	26.45
Exhibit Space Rentals — Convention	1,910.00
American Medical Association — for Collection of Dues	233.00
	<hr/>
Total Revenue	<hr/>
	\$33,409.75

EXPENSE

Secretary and Treasurer's Office:—	
Salary — Secretary, Treasurer and Editor	\$4,500.00
Assistant Secretary	3,000.00
Office Assistance	137.50
President's Expenses	425.00
Social Security Taxes	90.06
Secretary and Treasurer's Expenses	73.21
Councilors' Expenses	420.08

Continued on page 247

*Effective against many bacterial and rickettsial infections,
as well as certain protozoal and large viral diseases.*

AUREOMYCIN

Hydrochloride Crystalline



The Obstetrician is daily finding aureomycin an increasingly valuable agent for the prevention and treatment of infection. It may be given to advantage prophylactically in long and difficult labors and in all operative deliveries or infected abortions. Aureomycin not only attacks the maternal disease but also, by its passage in therapeutic concentrations into the placental circulation, treats possible infection in the child before and during birth. Aureomycin has proved its usefulness in endometritis, parametritis, urinary infection, infected thrombophlebitis and other infections, caused by a wide variety of organisms. Aureomycin is a drug indispensable to obstetric practice.

Packages

Capsules: Bottles of 25 and 100, 50 mg. each capsule. Bottles of 16 and 100, 250 mg. each capsule.

Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. distilled water.

LEDERLE LABORATORIES DIVISION

AMERICAN Cyanamid COMPANY

30 Rockefeller Plaza, New York 20, N. Y.

when "eating for two" ... plenty of citrus fruits

Most obstetricians today insist that their mothers ingest plenty of vitamin C, particularly after the first trimester¹ (8 oz. citrus juice during pregnancy, 12 oz. while lactating).⁶ When an adequate nutritional regimen (with particular reference to vitamin C) is followed throughout pregnancy, toxemia is reduced⁷—more babies are born normally and with a higher birth weight^{3,4}—premature and still births are fewer^{3,4}—and both maternal and infant health are improved postpartum.² Most mothers enjoy the flavor of fresh Florida citrus fruits (so rich in vitamin C and containing other nutrients*), as well as the energy pick-up provided by their easily assimilable fruit sugars.⁵

**Citrus fruits—among the richest known sources of vitamin C—also contain vitamins A and B, readily assimilable natural fruit sugars, and other factors, such as iron, calcium, citrates and citric acid.*

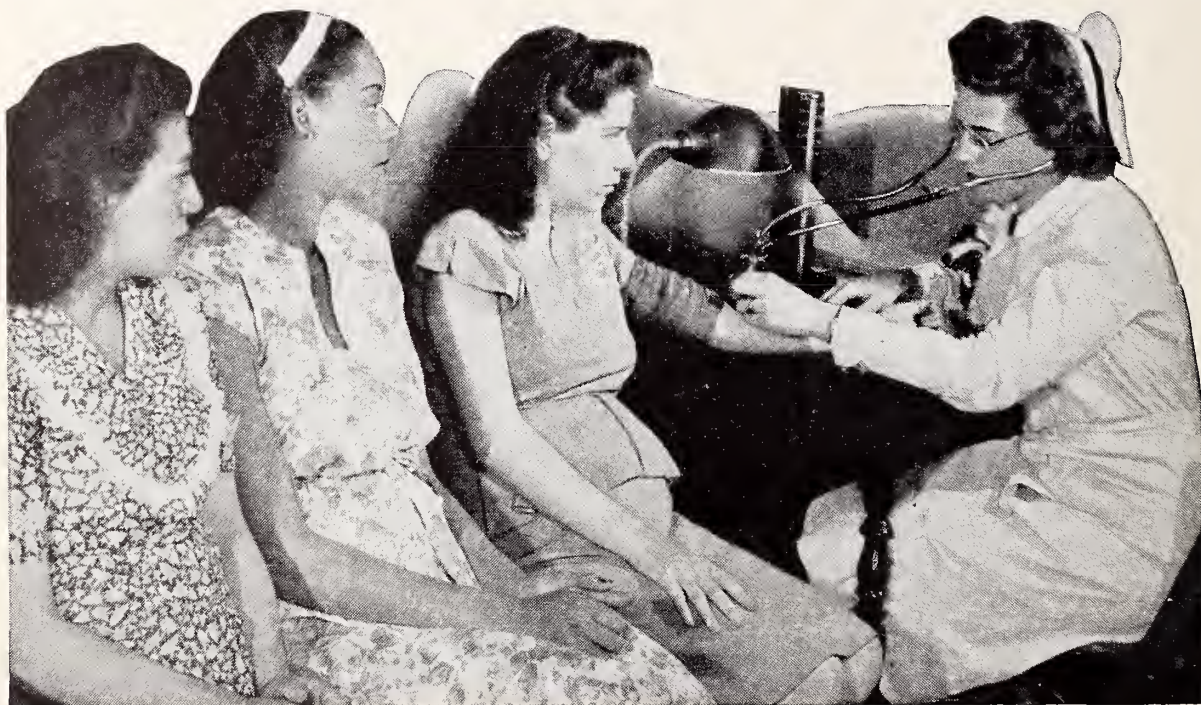
**FLORIDA CITRUS COMMISSION
LAKELAND, FLORIDA**

References:

1. Burke, B. S. and Stuart, H. C.: J.A.M.A., 137:119, 1948.
2. Burke, B. S. et al.: Am. J. Obst. & Gynec., 46:38, 1943.
3. Burke, B. S. et al.: J. Nutrition, 26:569, 1943.
4. Javert, C. T. and Finn, W. F.: Texas State J. Med., 46:745, 1950.
5. McLester, J. S.: Nutrition and Diet in Health and Disease, Saunders, Phila., 4th ed., 1944.
6. National Research Council: "Recommended Food and Nutrition Board, Daily Allowances for Specific Nutrients," Wash., D. C., 1948.
7. People's League of Health: J. Lancet, 2:10, 1942.

FLORIDA

**Oranges • Grapefruit
Tangerines**



Treasurer's Report—Continued from page 244

Office Expenses :—	
Rent and Lights	409.00
Supplies and Stationery	315.83
Telephone	237.30
Postage and Mailing Expenses	304.70
Auditing	180.28
Treasurer's Bond	5.00
Advertising	30.00
Subscriptions and Periodicals	83.50
Miscellaneous	94.40
A. M. A. Meetings	670.98
Medical Advisory and Special Committees	1,451.06
Annual Meeting	2,223.85
Clinical Sessions	166.61
House of Delegates	135.73
Delegates — New England Medical Societies	44.71
New England Council	100.00
5- and 10-Year Bars	27.00
Roster Reprints	40.00
	<u>\$15,165.80</u>
Printing	\$10,598.31
Plates	534.53
	<u>11,132.84</u>
Executive Secretary's Office	12,138.89
	<u>38,437.53</u>
Total Expense	
Expense in Excess of Revenue — One Year	<u>\$5,027.78</u>

STATEMENT OF EXECUTIVE SECRETARY'S EXPENSES

Salary — Executive Secretary	\$7,000.00
Stenographer	2,000.00
Travel and Convention Expenses	332.68
County Societies	136.24
National Education Campaign	426.14
Legislative Session	822.29
A. M. A. Meetings	84.00
Maine Plan	\$170.00
Less :—	
Received for Maine Plan	33.00
	<u>137.00</u>
Office Expenses :—	
Rent and Lights	424.62

Supplies and Stationery	175.51
Telephone	308.41
Postage	66.00
Social Security Taxes	75.05
Repairs	41.15
Subscriptions, Books and Periodicals	69.10
Miscellaneous	40.70
Total	<u>\$12,138.89</u>

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS — OPERATING

Cash in Banks — June 1, 1950 \$26,328.79

RECEIPTS

Received from Dues	\$23,047.50
Income from Investments	520.80
Exhibit Space Rentals	2,110.00
Subscriptions and Sales of JOURNALS	26.45
Advertising	7,704.92
Social Security and Withholding Taxes	1,890.98
Refund — Health Council of Maine	100.00
Maine Plan	142.53
A. M. A. — for Collection of Dues	233.00
	<u>35,776.18</u>
	<u>\$62,104.97</u>

DISBURSEMENTS

Secretary and Treasurer's Office :—

Salaries	\$7,637.50
Traveling and Other Expenses	918.29
Office Expenses	1,660.01
A. M. A. Meetings	670.98
Special Committees	451.06
Annual Meetings	2,260.31
Clinical Sessions	166.61
Delegates — New England Medical Societies	44.71
House of Delegates	135.73
5- and 10-Year Bars	27.00
Roster Reprints	40.00
Printing and Plates	11,293.67
Social Security and Withholding Taxes	2,008.46
	<u>\$27,314.33</u>

Continued on page 248

UNSCENTED COSMETICS

FOR THE ALLERGIC PATIENT

AR-EX Cosmetics are the only complete line of unscented cosmetics regularly stocked by pharmacies. To be certain that your perfume sensitive patients do not get scented cosmetics, prescribe AR-EX Unscented Cosmetics. SEND FOR FREE FORMULARY.



FREE FORMULARY

DR. _____
 ADDRESS _____
 CITY _____
 STATE _____

AR-EX COSMETICS, INC.,

1036 W. VAN BUREN ST.,

CHICAGO 7, ILL.

Advertisement



From where I sit by Joe Marsh

"One For The Book"

Miss Reynolds, our town librarian, really put a smart-aleck motorist in his place last week—happened right in center of town, at the corner of Main and Walnut.

Her car stalled, tying up traffic. Most drivers just waited quietly—realizing she couldn't help it—but one fellow kept blaring away on his horn.

So Miss Reynolds gets out of her car, walks over and says sweetly, "I'm afraid I can't start my engine. But if you'd like to try I'll stay here and lean on that horn for you." That stopped him—cold!

From where I sit, a lot of us are sometimes overeager to "sound off" before we really understand what it's all about. Like those who would tell a man where and how he should practice his profession . . . like others who would deny their neighbors the right to a glass of beer now and then. It's a good idea to get a true picture of the situation before blasting out at anyone who "gets in the way" of our own pet ideas!

Joe Marsh

Treasurer's Report—Continued from page 247

Executive Secretary's Office:—

Salaries	\$9,076.92
Travel Expenses	332.68
A. M. A. Meetings	96.50
Office Expenses	1,170.49
National Education Campaign	490.67
County Societies	136.24
Maine Plan	170.00
Legislative Session	822.29
	<u>\$12,295.79</u>
	39,610.12
	<u>\$22,494.85</u>

CASH IN BANKS — MAY 31, 1951

Canal National Bank — Checking Account	\$13,772.82
Canal National Bank — Savings Account	1,809.58
Maine Savings Bank	3,221.98
Portland Savings Bank	3,176.57
First National Granite Bank	513.90
	<u>\$22,494.85</u>

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS A. M. A. ASSESSMENT FUND

ONE YEAR ENDED MAY 31, 1951

Cash in Bank — June 1, 1950	\$ 389.00
-----------------------------------	-----------

RECEIPTS

Received from Assessments	14,275.00
	<u>\$14,664.00</u>

DISBURSEMENTS

Remitted to American Medical Association	\$14,500.00
Printing, Billheads, etc.	114.00
	<u>14,614.00</u>

Canal National Bank — Balance May 31, 1951	<u>\$50.00</u>
--	----------------

SECURITIES — MAY 31, 1951

BONDS

\$3,000 Portland Terminal Company, 1st Mortgage 5's, 1961	\$3,045.00
\$ 700 Prudence Bond Corporation, 1st Mortgage Coll., Series 6, 5½'s, 1936 (Defaulted)	700.00
\$4,000 U. S. Savings Bonds, "G", due July 1, 1956	4,000.00
\$2,000 U. S. Savings Bonds, "G", due March 1, 1961	2,000.00

STOCKS

10 Shares Mortbon Corp. of N. Y.	60.00
Total Securities	<u>\$9,805.00</u>



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, August, 1951

No. 8

Foreword to the Maine General Hospital Issue

This issue of the JOURNAL represents the Fourth collection of articles from this Hospital in the current hospital series. The editorial committee, whose responsibility it is to supervise the preparation and collection of these papers, have collected ten papers and as previously these have been planned to include the general activities of the hospital. There are five articles from the Clinical Services, two of which deal

with problems occurring in general practice; three papers from the Laboratory and X-ray Departments, including a timely analysis of a chest survey program; two articles from the Administrative Department concerning financial problems of hospitalization.

EDITORIAL COMMITTEE,
MAINE GENERAL HOSPITAL.

CLINICAL AND DEPARTMENTAL

ACUTE OBSTRUCTION OF THE SMALL INTESTINE

JACK SPENCER, M. D., and LANGDON T. THAXTER, M. D.*

In 1928, Case reported on the value of radiological examination of the abdomen in cases of suspected intestinal obstruction. At the Maine General Hospital one of the authors (L. T. T.) became interested in this subject and with the full coöperation of the surgical service, the interest of obtaining a scout film on all acute abdominal cases presenting a diagnostic problem was stimulated. Since 1928, most of the cases admitted to this hospital with an acute abdomen without established diagnosis have had radiological studies of the abdomen. The early cases were re-

ported at the Radiological Society of North America in 1946.

The material for this paper represents a study of one hundred and ninety cases of acute mechanical obstruction of the small bowel since 1938. Of these, one hundred and eleven cases had radiological studies and a diagnosis of small bowel obstruction was established at time of operation or autopsy. Hence this group affords an excellent opportunity to correlate the roentgen ray studies with the operative findings. Cases of external hernia, carcinomatosis and peritonitis where the obstruction was of secondary importance have been excluded. This corresponds to

* Department of Roentgenology, Maine General Hospital, Portland, Maine.

reports from Massachusetts General Hospital by Scudder, Richardson, McIver, McKittrick and Sarris.

It has frequently been reported (by others) that with adequate roentgen study, the diagnosis of intestinal obstruction is highly accurate. Furthermore, the location of the lesion may be approximated in a large percentage of cases and in some the nature of the obstruction may be anticipated. As early as 1915, Case reported on the use of the roentgen ray in the diagnosis of obstruction. During the last decade a mass of literature has appeared on the subject. The literature has been adequately reviewed in the recent book of Wangenstein, and also by Golden, therefore no attempt will be made to duplicate their extensive studies.

ROENTGENOLOGICAL STUDY

It has been a routine practice to obtain "scout films" on all acute abdominal cases admitted to the Maine General Hospital when the diagnosis has not been clearly established clinically. Ideally, the single film should be studied immediately and if further information is desired, an upright film should be taken including the diaphragms to determine the presence of fluid levels or free air in the peritoneal cavity. A decubitus film with the right or left side up, or a lateral view in the supine position if the patient is acutely ill, will give the same information and will also help to identify further the point of obstruction. In the study of all films, the following points are kept in mind:—

1. Abnormal gas shadows, due to:
 - a. Intestinal tract, and what part.
 - b. Pneumoperitoneum.
 - c. Air in the biliary tract.
 - d. Fluid levels.
2. Possible causes of mechanical or reflex ileus.
 - a. Renal stones.
 - b. Gall stones.
 - c. Fecoliths.
 - d. Foreign bodies.
3. Abnormal soft tissue shadows.
4. Bony abnormalities.

Visible gas in the gastro-intestinal tract may be demonstrated normally in the stomach, colon and less often in the duodenum. After an enema, fluid and

gas may pass through the ileocecal valve into the small bowel, but in such cases the gas is minimal in amount and is usually limited to the terminal ileum, which shows no dilatation. In cases of large bowel obstruction, the ileocecal valve may be patent with dilated small bowel. Sometimes in the case of large bowel obstruction, the valve does not open and there are varying degrees of distention of the cecum even with rupture and localized abscess formation.

The occurrence of gas in the small bowel after instrumentation for retrograde pyelography and also in any acute abdominal pain is a familiar observation. At times it may be difficult to decide whether this gas is of primary importance, but usually the history plus the fact that the bowel is not dilated, will help to determine the significance of the changes. (Figure 1.) The important point, therefore, is not only whether gas is present, but whether there is dilatation of the small bowel.

An attempt should be made to determine the loca-

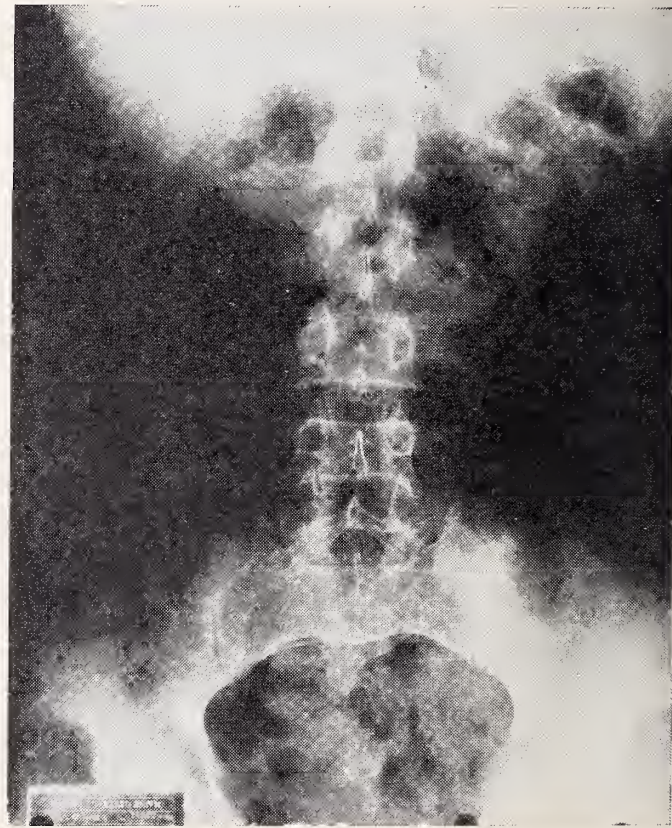


Figure 1

Case of renal colic with gas in the large and small bowel. A segment of small bowel in the region of the left sacroiliac joint is outlined with gas, and mucosal folds (Kerkring's folds) can be identified. There is no evidence of mechanical obstruction in this case.

tion of the gas and thereby estimate the location of the obstruction. In general, it may be stated that the jejunum is mostly in the left upper abdomen extending to the left lower quadrant, while the ileum is to the right, extending into the right lower quadrant and pelvis. When the bowel is markedly distended however, the positions may be altered so that this observation, though it may be helpful, is not entirely dependable.

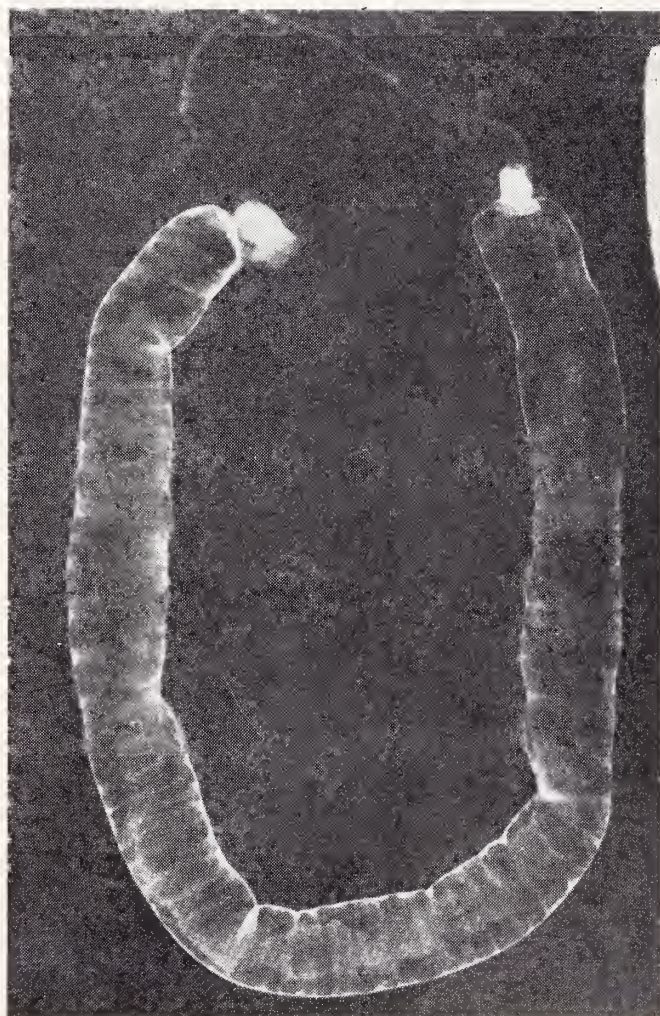
The anatomical characteristics give the most important information. The lumen of the jejunum is the widest part of the small intestine. (Figures 2, a, b, c). The circular or transverse mucosal folds (valvulae conniventes or Kerkring's folds) are higher, closer and thicker than those of the ileum and cannot be obliterated. The ileum has a narrower lumen, the mucosal folds are fewer in number, are slender, shallow, and can be obliterated in the dis-



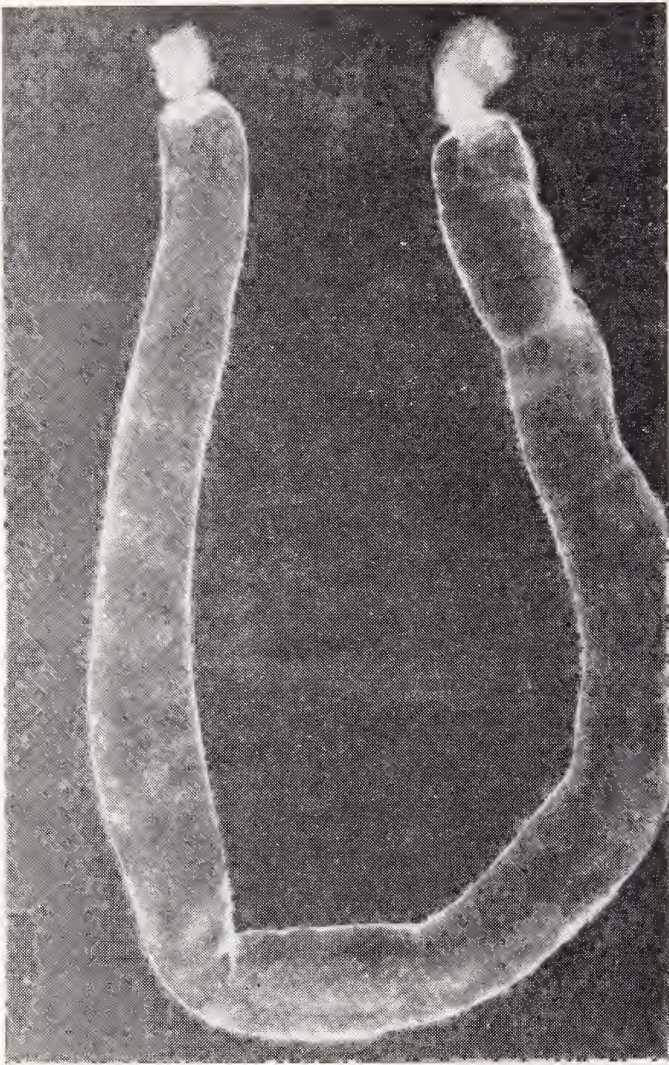
Figure 2
a, b, c

Radiograph of segments of small intestine, after injection with air.

a. Upper jejunum.



b. Mid small bowel.



c. Terminal ileum.

tended segments. (Chart 2.) With a small amount of gas in the jejunum a typical “feathery” appearance is evident, which changes to a “herring-bone” or “coil-spring” pattern as dilatation increases. The wall, therefore, appears straighter and thinner. (Figure 3.)

In lower jejunal obstruction the mucosal folds become straighter, giving a “squaring” of the segments. For this reason it is sometimes difficult to distinguish this portion of the small bowel from the colon. In such cases a barium enema may be necessary for differentiation. (Figure 4.) In selected cases further study by means of the Miller-Abbott tube and barium injection may be helpful in localization of an obstruction.

As the more distal segments of the ileum are involved, the mucosal folds become fewer, wider apart, and more easily obliterated, giving a “characterless” appearance to the markedly dilated loops.

The colon is distinguished by its haustral markings and the fact that it lies laterally, except for the transverse colon, which is in continuity with the lateral areas. Its walls are thicker and dip downward, the haustral marking giving a scalloped appearance.



Figure 3
Early high jejunal obstruction. Note “feathery” pattern of dilated jejunum.



Figure 4
Low jejunal obstruction. (Compare with Figure 3.) Note “Squaring” effect of mucosal folds and the folds are wider apart.

CHART 2

ANATOMICAL AND ROENTGEN RAY CHARACTERISTICS OF THE NORMAL INTESTINAL TRACT

	<i>Jejunum</i>	<i>Ileum</i>	<i>Colon</i>
Location	Left upper quadrant	Right lower quadrant and pelvis	Laterally except for transverse which can be seen in continuity with lateral portions
Thickness of walls	Thick	Thin	Thickest
Lumen	Widest part of small intestine	Not as wide	Widest portion of intestine
Mucosal folds (Circular folds)	Kerkring's folds Higher, closer Thicker	Circular folds Shallower Fewer, thinner	Coarse haustral markings

With Distention

1. "Feathery" appearance with a small amount of gas	"Characterless" appearance with folds becoming obliterated	Haustral markings with scalloped effect
2. "Herring-bone" or "coil-spring" appearance as distention increases		
3. Straight and thin walls		
4. Fluid levels	Fluid levels	Long single fluid level

In mid-bowel (low jejunum and upper ileum) the "coil-spring" appearance is lost and folds become straight giving a "squaring" effect.

"Hair pin" loop — early or partial.

Ladder formation — late.

ANALYSIS OF DATA

There were one hundred eleven cases with an operative or anatomical diagnosis of intestinal obstruction of the small intestines and in one hundred two of these cases the roentgen findings were conclusive of obstruction. From these findings it is to be emphasized that when roentgen studies are done early, the diagnosis can be clarified with a high degree of accuracy.

An analysis as to the causes of the obstruction as determined at operation is given in Chart 3. Adhesions were found to be the cause of the obstruction in eighty-nine cases (81%). There were nine cases of intussusception, seven in infants and two in adults. Gall stone ileus and Meckel's diverticulum were each found in four cases.

There were nine cases in which the radiographic findings were not interpreted as those of a mechanical obstruction. Of these, in two cases it was felt that the changes represented a mechanical obstruction. There were four cases diagnosed ileus; however, two of these cases on second examination had an appearance of definite mechanical obstruction. There was one case diagnosed ileus and operation revealed terminal ileitis. There was another case of a six-months' pregnancy in which the report was not con-

clusive and a second case in which there were a few dilated loops of small bowel which at time of operation were proven to be an obstruction. There was one case which showed a large amount of fluid in the small intestines with a very little gas. The roentgen diagnosis in a similar case can readily be missed or

CHART 3

MECHANISM OF OBSTRUCTION

Cause of the Obstruction:

Adhesions with previous laparotomy	62
Adhesions without previous laparotomy	13
Adhesions with volvulus	14
Internal hernia	1
Meckel's diverticulum	4
Gall stone ileus	4
Intussusception in infants	7
Intussusception caused by fibromyoma of ileum	1
Intussusception caused by adenocarcinoma of ileum	1
Terminal ileitis	2
Undiagnosed carcinoma of cecum	1
Cicatrix (radium)	1

even confused with ascites. There were two cases with negative findings when first examined but during an attack of intestinal colic a dilated loop of small bowel was seen. This examination was suggested by Dr. Isaac M. Webber, and is of importance in illustrating the value of examination of possible intermittent obstruction during the acute period as in these cases the localized obstruction may be suddenly released and immediately the untrapped gas diffuses throughout the small bowel, and therefore the dilated loop will not be seen in the film.

In the previous group of cases reported, there were fifty cases with the location of the obstruction stated in the operative notes. The films on these cases were studied without reference to the operative record and the location of the obstruction given at one of three levels; namely, jejunum, mid small bowel (low jejunum and upper ileum), and terminal ileum. In every instance the approximate level, as determined from the roentgenogram, corresponded to the operative finding. The obstruction was in the terminal ileum in thirty-three cases, in the mid small bowel in nine cases, and in the jejunum in six cases. In eight cases a barium enema was necessary for localization of the gas.

The cause of the obstruction can be identified in some cases of intussusception in infants and children and readily diagnosed on the film. The cause in the

two cases of intussusception in adults was suspected to be a tumor in the region of the ileocecal valve. There were four cases of Meckel's diverticulum as the cause of obstruction and in no case was the diverticulum identified. There were four cases of gall stone ileus and because of air demonstrated in the biliary tract, although the gall stone was not identified on the film of the abdomen, the diagnosis could be established. In the previous report there was one case of a gall stone ileus with a large calcified stone making the diagnosis readily apparent. (Figure 5.)

There were twenty-two deaths (19%). The cause of death in fifteen cases was due to peritonitis complicating obstruction due to adhesions. It is in this type of obstruction where, if still earlier diagnosis and treatment be instituted, the mortality can be lowered. Three of the cases had intussusception and two each had a Meckel's diverticulum, and gall stone ileus.

DISCUSSION

It must be emphasized that there are a large number of cases presenting problems in the diagnosis of obstruction that will require frequent clinical and roentgen examination of the abdomen. The selection of cases that have been verified surgically necessarily limits the doubtful cases and allows a more accurate correlation of the roentgen and operative findings.

If the large abdominal film cannot be studied by the radiologist immediately (wet) and at this time further studies decided upon, upright or two decubitus films should be taken as a routine in the acute abdominal cases. It cannot be emphasized too strongly that when the single films of the abdomen and additional upright or decubitus films are not conclusive, the importance of doing a barium enema immediately must be stressed. In the first group of intestinal obstruction cases which were previously reported, this fact was emphasized by one case where there was an apparent obstruction on the single film (Figure 6). However, a barium enema revealed a volvulus of the cecum and also adhesions between the sigmoid and small bowel producing an obstruction. This illustrated the fact that where there is both small and large bowel dilatation, a double obstruction should be suspected, although, in the large bowel obstruction there may be gas in the small as well as the large bowel.

As previously stated, there were one hundred and ninety cases of small bowel obstruction reviewed. The evaluation of the roentgen findings on the unoperated cases is not attempted in this discussion. In the proven cases, the value of roentgen studies is established, but by no means is it a substitute for close clinical observation, including frequent examinations of the abdomen, both by palpation and auscultation. This is particularly true in cases to be differentiated between mechanical and paralytic ileus.

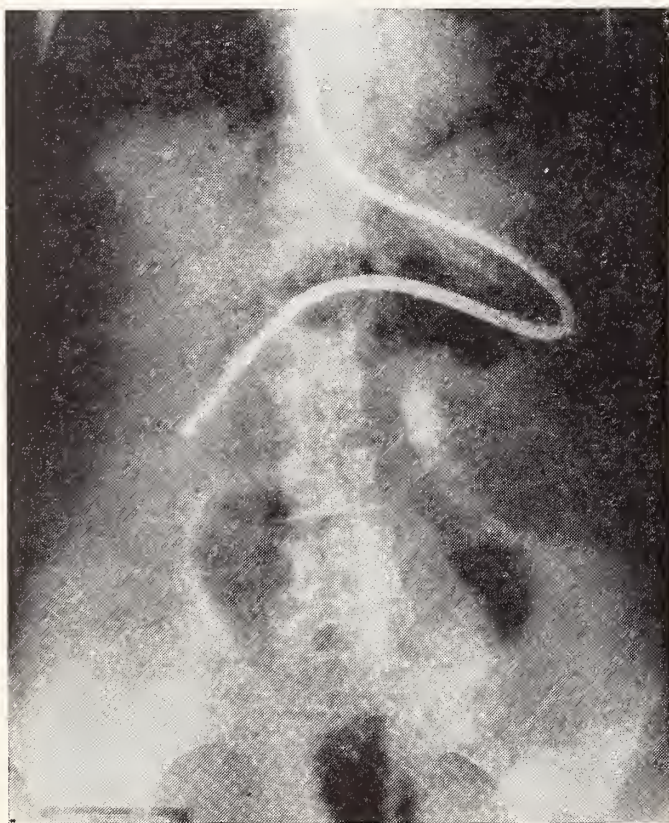


Figure 5

Obstruction due to gall stone with air in the gall bladder also demonstrated. Courtesy *Radiology*.

Paralytic ileus many times cannot be distinguished on first radiographic examination from mechanical ileus. Paralytic ileus usually shows irregular distention of both the large and small bowel and the lack of prominence of Kerkring's folds. The irregular distribution of the fluid levels is also found. In peritonitis and post-operative complications, injuries to the spine, pneumonia, and in the cases of late mechanical obstruction, the appearance of the intestinal gas may present a variety of changes. In early cases the changes may be diagnostic; however, in long standing cases where the progress has been poor, a confusing picture may be found and the differential diagnosis between mechanical and paralytic ileus may present a most difficult problem. The stethoscope may be the abdominal surgeon's most important instrument in the differentiation. The fact that both mechanical ileus and paralytic ileus may be present is also a possibility.

It should be stressed always that, important as they may be, the roentgen findings are only an adjunct to the history and physical examination and other laboratory data. All should be correlated before arriving at a final diagnosis.

The Miller-Abbot tube and others can be used not only for decompressing the intestine, but also, with injection of a small amount of barium through the tube, it can further be used for identifying a point of obstruction. The fixity of a point of obstruction can be evaluated further by demonstrating narrowing, then taking films in the right or left decubitus positions.

SUMMARY

1. One hundred eleven cases of obstruction of the small intestine were studied and operative and roentgen findings correlated.
2. The radiographic findings were conclusive of obstruction in 92% of the cases studied.
3. The level of obstruction can be localized roentgenographically, i.e., jejunum, mid small bowel, or ileum.
4. Of the one hundred eleven cases studied, there were twenty two deaths (19%).
5. The importance of taking a "scout film" first followed by special views depending on the history, physical findings and information obtained from the first film, is stressed.
6. The anatomy of the small bowel is discussed in relation to the radiographic changes.

BIBLIOGRAPHY

1. Ascroft, P. B., and Samuel, Eric: X-ray Diagnosis of Acute Intestinal Obstruction. *British J. Roentgen.*, 14: 11-22, Jan., 1941.



Figure 6

"Hairpin" loop of dilated small bowel due to adhesions causing early obstruction of the ileum.



Figure 7

Dilatation of the small and large bowel. A barium enema study demonstrated the sigmoid in the right lower quadrant and a markedly dilated cecum. Operative findings demonstrated a volvulus of the cecum and also obstruction at the terminal ileum. Courtesy *Radiology*.

2. Brunn, H., and Levitin, J.: Roentgenological Study of Intestinal Obstruction. *Surg., Gynec., and Obst.*, 70:914-921, May, 1940.
3. Case, J. T.: A New Aid in the Early Recognition of Post Operative Ileus. *J. Michigan M. Soc.*, 19:151-154, 1920.
4. Case, J. T.: Roentgenological Aid in the Diagnosis of Ileus: 19:413-424, *Amer. J. Roentgenology*.
5. Donaldson, J. K.: Intestinal Obstruction: Analysis of 200 Cases Attempting Improved Correlation of Mortality, Pathologic Physiology, and Signs and Symptoms. *Am. J. Surg.*, 40:505-513, June, 1938.
6. Golden, R.: Radiologic Examination of the Small Intestines. *Phil., J. B. Lippincott Co.*, 1945.
7. Golden, R.: Some Problems in Abnormal Intestinal Physiology Associated with Peritoneal Adhesions and Ileus. *Amer. J. Roentgen.*, LVI:5, 555-568, Nov., 1946.
8. Levitin, J., and Rauner, L. M.: Roentgenological Study of the Post-Operative Abdomen. *Surg., Gynec., and Obst.*, 75:510-514, Oct., 1942.
9. McIver, M. A.: Acute Intestinal Obstruction: Acute Mechanical Obstruction Exclusive of Those Due to Neoplasms and Strangulated Hernia. *Arch. Surg.*, 5:1106-1124, Dec., 1932.
10. McKittrick, L. S., and Sarris, S. P.: Acute Mechanical Obstruction of the Small Bowel: Its Diagnosis and Treatment. *New England J. Med.*, 222:611-622, April 11, 1940.
11. Richardson, E. P.: Acute Intestinal Obstruction: Second Series of Cases from Massachusetts General Hospital. *Boston M. and S. J.*, 183:288-298, 1920.
12. Ritvo, M.: Roentgen Diagnosis of Lesions of the Jejunum and Ileum. *A. J. Roentgen.*, 23:160-169, Feb., 1930.
13. Scudder, C. L.: Principles Underlying Treatment of Acute Intestinal Obstruction: Study of 121 Cases of Acute Intestinal Obstruction from Massachusetts General Hospital Clinic. *Tr. New Hampshire M. Soc., Concord*, May 14 and 15, 1908, pp. 234-276.
14. Spencer, Jack, and Thaxter, L. T.: Acute Obstruction of the Small Bowel. *Radiology*, 49:611-619, Nov., 1947.
15. Swenson, P. C., and Hibbard, J. S.: Roentgenographic Manifestations of Intestinal Obstruction. *Arch. Surg.*, 25:578-600, Sept., 1932.
16. Thaxter, Langdon T.: Spontaneous Pneumoperitoneum in Perforated Peptic Ulcer. *Amer. J. Roentgen.*, 44:853-860, 1940.
17. Wangenstein, L. H.: Intestinal Obstruction. Springfield, Ill., Charles C. Thomas, 2nd ed., 1942.
18. Webber, Isaac M.: Personal communication.

A FEW PRACTICAL POINTS IN THE TREATMENT OF ACUTE HEAD INJURIES*

GEORGE L. MALTBY, M. D.**

The literature on the treatment of head injuries is voluminous and at times, confusing and controversial. No attempt will be made at this time to review the many excellent articles on the subject of the treatment of head injuries or to embark on any discussion of the many unsettled problems. We will just try and bring up a few of the more practical down to earth points that we have found very useful in handling the problems of acute craniocerebral trauma.

The problem is not primarily surgical in the sense of operative. Well over sixty-five percent of all acute head injuries fall into the so-called non-operative group. Thus, the problem of craniocerebral trauma is not primarily for the specialist or neurological surgeon but is rather a very important problem in the everyday practice of the well rounded general surgeon, general practitioner and pediatrician.

As a basis for our understanding of what is going on in the head, we try to have some basic pathological classification. We use the term concussion to mean loss of consciousness due to a blow on the head without residual. These cases are almost never hospitalized and rarely seen by the doctor. Cerebral contusion with edema of all degrees even to the severely

lacerated brain comprises the other large group of closed or non-operative head injuries. The operative group includes everything from the simple scalp laceration through the simple depressed fracture, compound fracture, subdural hematoma, extradural hematoma to the more esoteric complications such as rhinorrhea and traumatic arteriovenous fistulae. The latter group is not exclusive of the former and there are few subdurals that are not complicated by various degrees of cerebral contusions.

The important points in this brief report are those related to the acute and subacute treatment of the patient with a blow on the head. Careful original examination as a base line is all-important. History is usually not available and often sketchy and inaccurate. Always beware of those conditions mimicking head injury; diabetic coma and insulin reaction, uremia, barbiturates and other drug intoxications and certain cerebrovascular accidents in the older age groups. General physical examination for concomitant injury is very important. Careful neurological evaluation with emphasis on pupillary changes, reflexes and progressive paralyses are all important. Frequent, brief checks for neurological changes are more important than any single, careful examination.

So-called cerebral shock should be differentiated from surgical shock—the treatment is much different. The head-down position, blankets and morphia accepted in the treatment of surgical shock are all bad

* Read at the Charter Meeting of the Maine Chapter of the American College of Surgeons, Belgrade Lakes, Maine, on Wednesday, June 20, 1951.

** Chief of the Neurosurgical Service, Maine General Hospital, Portland, Maine.

in a patient with a primary head injury. We feel that the most important vital signs to follow in evaluating the severe head injury are state of consciousness, respirations and temperature. Pulse changes may be of little value while frequent blood pressure readings are almost always useless.

An adequate airway implying adequate pulmonary ventilation is without doubt the one most important item in treating these cases. Oxygen, a clear airway, frequent suction are the sine qua non in treating head injuries. At times, even intratracheal intubation and tracheotomy will have to be resorted to in order to prevent anoxia in already damaged cerebral tissue.

We believe that dehydration in head injuries is dangerous and may do more harm than good. This is especially true in children. So-called toxic dehydration can cause all the signs and symptoms of cerebral edema. A patient should have at least 2400 c.c. of fluid in twenty-four hours and usually more if there is a tendency to central hyperthermia. If the patient remains unconscious over a three or four-day period, parenteral fluids will have to be supplemented with tube feedings containing high caloric and high protein mixtures.

Don't be talked into taking emergency X-rays. The family, the press, the lawyers will all want to know about the X-rays and what did they show. Except in certain rare instances such as compound depressed fractures, the emergency X-ray is of no value. In fact, we feel that one of the worst things that can be done to an unconscious patient with a severe, closed head injury is to take emergency X-rays. X-rays should be deferred until the patient is convalescing and then, are only of documentary and medicolegal value.

Methods of treating cerebral edema are controversial. We feel that frequent lumbar punctures with the idea of reducing pressure for any appreciable time are useless. A lumbar puncture is important in almost every case of suspected head injury simply to establish the presence of blood in the subarachnoid space and thus have available irrefutable evidence of cerebral contusion—important both prognostically as a base line and medicolegally. Occasionally, the removal of a small amount of very bloody spinal fluid may quiet a restless and agitated patient but frequent, repeated lumbar punctures with any feeling that one is treating diffuse cerebral edema seem useless. We have already stated that dehydration is more dangerous than helpful in handling this problem. The old operation of subtemporal decompression is no longer considered of any value in treating acute head injuries. It is never adequate to control pressure and usually only makes the situation worse when the edematous cortex bulges into the bony opening and cortical veins are compressed. Adequate cerebral oxygenation, normal fluid and electrolyte

balance are of much greater value than any of these older methods of treating acute, closed head injuries.

Nursing care is of primary importance in treating the acute head injury. Restlessness can often be well combatted by intelligent and understanding nursing. Drugs may be used sparingly—Sodium Luminol intramuscularly or intravenously may be helpful. Paraldehyde in spite of its drawbacks is perhaps the safest and most useful drug in the wild and restless head injury. Barbiturates may be necessary but they should be used with adequate understanding of the overall situation and only when a careful neurological evaluation has been carried out. Morphine and, at times, even Demerol may be dangerous because of their medullary depressant effects. It is important not to forget that such a simple procedure as bladder drainage may be all that is necessary to change a very difficult nursing problem into a very docile patient.

The use of antibiotics is important in the problem of craniocerebral trauma as in all types of surgery. They should always be employed in patients that have severe scalp lacerations, compound fractures and especially in those cases in which there is evidence of bleeding and/or spinal fluid coming from the orifices, especially the nose and ears. Spinal fluid leak from the nose, that is rhinorrhea, may become a definite indication for surgical intervention.

The points already mentioned and discussed are only a few of the many problems that one must face in treating the non-operative head injury. I have purposely avoided the important but very complicated problem of the post-traumatic syndrome or state. This is fraught with difficulty and intimately connected with the problems of psychiatry and compensation medicine. There is one vital point that seems important to be remembered by everyone dealing with head injuries—whenever possible and fair, minimize the severity of the head injury to the patient and his family. Don't make a fuss about it; don't show him his X-rays; don't trace out his linear fracture line. It is only human nature to be very suggestible and the head of man is almost inviolate. The seeds of a post-traumatic neurosis are easily sown. Remember post-traumatic states and neurosis are rare in children who pay little attention to doctors' and medical attendants' statements.

Finally, the operative treatment of craniocerebral injuries has not been discussed. The non-operative care is much more important. However, exploratory burr holes are very comparable to exploratory operations for acute appendicitis. A few negative burr holes are less damaging and distressing than the pathologist's report of death due to sub or extradural hematoma. Progressively deepening coma and progressive neurological signs, to say nothing of deteriorating vital signs are all indications for the institution of the so-called woodpecker surgery, that is,

burr holes to rule out an expanding intracerebral clot. Operate because you suspect a sub or extradural or very rarely an intracortical clot, not because you are trying to decompress the brain. Don't be ashamed of a negative burr hole. Except for a rare, massive, arterial, extradural hematoma, real emergency surgery in craniocerebral trauma is rarely necessary. Be sure you have adequate technical assistance which should include a good suction, some type of electro-surgical equipment and whole blood. With these plus reasonable surgical training and judgment, you can handle any surgical problem arising in the treatment of acute and subacute craniocerebral trauma. Compound fractures of the skull must be debrided but unless complicated by massive intracranial bleeding,

they are never emergencies. The debridement should be complete to be worth while. This means removal of contaminated necrotic brain tissue by suction. Don't stop with an excellent debridement of scalp, bone and even dura only to leave contaminated brain tissue at the bottom of the tract. The end result may be meningitis or brain abscess.

In summary, we have briefly discussed some of the more important points in the adequate care of the acute and subacute cases of craniocerebral trauma. Special emphasis has been placed on the non-operative treatment with some of the findings, signs and symptoms that may point toward the necessity of operative intervention.

TREATMENT OF ACNE IN THE FEMALE WITH A HORMONE

O. R. JOHNSON, M. D.*

The object of this brief summary in the treatment of Acne with a hormone is the hope that it will be of some value to the general practitioner.

In the last few years there have been several reports in the literature concerning the value of hormones in the treatment of acne. Like all new medications, time alone tells us whether it's good, of some value, or bad.

Acne is due to hyperactivity of the sebaceous glands and a change in the nature of their secretion. Since most cases have their onset during puberty, one would feel that hormonal stimuli enters into the picture. Therefore, it is understandable that hormones have been given to patients in some of the larger centers where the usual routine therapy has failed to produce the desired results. Patients who have failed to respond to accepted procedures are grateful when they do improve to some type of therapy.

My experience with a hormone in the treatment of acne is very limited. However, three patients who re-

sponded poorly to X-ray have improved sufficiently to make me feel that a frank discussion with the patient concerning probable results is justifiable.

Hormone therapy appears to be more applicable to the older group, when acne starts around the age of twenty or above that age. The cases treated in this small series were not asked to restrict any particular food or to avoid foods high in fat content. Progest-erone was the medication used in 4-6 mg. dosage at weekly visits. The average number of visits to obtain good results were fifteen. Progesterone was used in nine cases who had received no previous acne therapy. One out of three responded well.

My conclusion is that Progesterone will be found more useful in the older patient with acne. It should not replace the time accepted methods such as diet, ultra violet light, local therapy, X-ray, and in some cases, autogenous vaccines. Sufficient time has not elapsed to permit definite conclusions as to permanent results in the cases that apparently responded to Progesterone.

* Chief of Dermatological Service, Maine General Hospital.

In a world in which coöperation on the political level seems at present an unrealizable dream, it is heartening to recall that it has existed for a long time in the field of health. Widespread public health is both an instrument and a condition of any lasting peace. — Dr. F. W. Behmler, *Minnesota's Health*, October, 1950.

In more than one country in the world, in recent years, carefully planned studies into infection and morbidity rates have shown clearly that the incidence of clinically significant tuberculosis is far in excess of that which is compatible with the death rates as returned officially by the same communities.—*Official Records of the World Health Organization*, No. 18.

COMMON METHODS IN THE DIAGNOSIS OF HEMORRHAGIC DISEASES

FRANKLIN F. FERGUSON, M. D.*

So many and so rapid have been the recent developments in the field of the hemorrhagic diseases and the clotting mechanism, that the subject has occasionally seemed puzzling even to those who are especially interested in this problem. Much can be accomplished, however, in the care of patients suffering from this type of disease by the careful use of some of the simpler methods which are readily available to most physicians. For this reason, a brief review will be attempted of some of these methods and what they may accomplish.

In the study of a patient with hemorrhagic disease, the necessity of a careful history and physical examination is of no less importance than in any other type of case. Abnormal uterine bleeding, epistaxis, bleeding from the gums, or gastrointestinal bleeding may be the first evidence of a coagulation defect. The discovery of a history of the ingestion of large amounts of salicylates or of exposure to benzene or the demonstration of a large liver or spleen may lead more quickly to a correct diagnosis than a battery of laboratory tests. Purpura is more frequently of the secondary type due to toxic or infectious causes than of the idiopathic variety and frequently reemphasizes the advantages of careful physical examination and questioning of the patient. The tourniquet test will be a part of the physical examination.

The laboratory examination of the patient will include the following preliminary survey:

1. Complete blood count consisting of red cell count, hemoglobin determination, white blood cells count.
2. Differential count on stained smear with morphologic study of the red blood cells and platelets.
3. Study of the coagulation mechanism.
 - a. Platelet count and study of platelets in stained smear.
 - b. Coagulation time.
 - c. Bleeding time.
 - d. Clot retraction time.
 - e. Prothrombin concentration determination.

Further tests which will frequently be of assistance are as follows:

4. Reticulocyte count.
5. Icterus index or serum bilirubin.
6. Examination of bone marrow aspiration.

The routine complete blood count and differential as usually performed in the office laboratory or hospital may furnish a prompt answer as to the cause of the bleeding. Often the defect will be found to be secondary to some primary blood dyscrasia, such as one of the types of leukemia or an aplastic anemia. The same tests also will afford some immediate information as to the extent of the bleeding from the degree of anemia present and allow one to make a preliminary estimate as to the amount of replacement therapy that will be required in the form of transfusions.

The evaluation of the platelet count requires slightly more attention because no methods of absolute accuracy exist. With proper care and interest, however, sufficient uniformity of results can be obtained to aid the physician in his clinical decisions. A direct counting method, such as that using Rees and Ecker diluting fluid with the "red" pipet and standard hemocytometer, will give the most reliable results if checked by examination of stained smears. The values for an individual laboratory should be established by the frequent examination of normals. The range of normal may vary from 200,000 to 500,000 in different laboratories and fluctuations of 50,000 to 100,000 are often not clinically significant. The danger zone is 100,000 or less. The bleeding zone is 50,000 to 60,000 or less, and a low range of 5,000 to 10,000 may be encountered in some cases. Rarely no platelets may be found.

Further examination of the coagulation mechanism by means of the bleeding and clotting times and the clot retraction time will be helpful in evaluating the results of the platelet counts.

The bleeding time may be estimated satisfactorily by the Duke technic. A moderately deep puncture of the ear lobe or finger is made with the lancet. This puncture should be deep enough to result in oozing without pressure. The drop of blood is then removed with filter paper or blotter at half minutes intervals until the bleeding stops spontaneously. The strictly normal bleeding time by this method is 1 to 3 minutes, over 5 minutes is prolonged, but occasionally bleeding times of 8 to 10 minutes will be encountered without clinical bleeding. Pathological bleeding times usually will be sufficiently prolonged so as not to be confused with the normal. Several tests should be performed as a check if there is any doubt as to the result of the first test.

The Lee and White method for the clotting or coagulation time will give fairly uniform results of 6

* Associate Pathologist, Maine General Hospital, Portland, Maine.

to 15 minutes in normal cases. Venous blood is drawn into a syringe and placed into three thoroughly clean Wasserman tubes of 8 mm. diameter which have been rinsed with clean normal saline solution. One c.c. of venous blood is placed in each of the three tubes. The first and second tubes are examined at intervals to observe coagulation. The third tube is left undisturbed as agitation tends to hasten coagulation. The test may be performed at room temperature or at 37° C. in the water bath or incubator.

The clot retraction may be observed by saving the tubes used for the Lee-White coagulation time or in an additional tube containing 3.0 c.c. of venous blood obtained at the same time and stoppered and placed in the incubator. The normal clot begins to contract in 30 minutes to one hour after it is formed. It may be delayed from 2 to 4 hours, when there is a platelet deficiency or platelet defect. Clot retraction in hemophilia is normal once the delayed clotting has occurred. Clot retraction should be complete in 18 to 24 hours. No clotting will occur in fibrinogen deficiency. Study of the clot retraction is an excellent check on the platelet count since it is subject to very little technical error.

The study of the conversion of prothrombin to thrombin has resulted in particularly rapid and sometimes confusing developments, but these do not detract from the value of the usual tests for the determination of prothrombin concentration in the study of hemorrhagic disease. The reader is referred to the several recent reviews for the details of the newer developments concerning the conversion factors and accelerators.^{1, 3, 10}

The Quick prothrombin time concentration test or some modification thereof is that usually available in the routine laboratory and will afford a useful overall picture of this feature of the coagulation mechanism.

The one-stage prothrombin test depends on the addition of the thromboplastin and calcium to plasma and observing the length of time required to produce clotting as compared to a normal control. The conditions of this test must be carefully controlled in order to produce satisfactory results and the prothrombin time will vary considerably according to the nature of the thromboplastin which is used. For these reasons each laboratory must prepare a dilution curve for the prothrombin concentration results with the particular thromboplastin which is to be used and all results must be checked by the frequent use of normal controls. Prothrombin concentration is reported as a percentage of the normal concentration and bleeding usually does not result until the prothrombin concentration reaches 20% of the normal or less.

The prothrombin consumption test^{3, 4, 7, 9} as de-

scribed by Quick is slightly more complicated, but will be useful in understanding the coagulation defect in some cases. In hemophilia and in marked thrombocytopenia there is minimal activation of thromboplastin to form the clot, so that a large residual of prothrombin remains and prothrombin consumption can be demonstrated to be decreased as measured by this test.

The examination of bone marrow specimens obtained by aspiration or other methods requires slightly more experience in interpretation, but facilities for these studies are becoming increasingly available in most areas and will frequently add considerably to the understanding of some cases after the preliminary type of study which has been outlined.

The following examples are presented to illustrate the usefulness of these few commonly available tests. In thrombocytopenia, the bleeding time is long, the clotting time normal, the clot retraction delayed or imperfect, the platelet count less than 100,000 and the tourniquet test positive; the prothrombin concentration is normal and the plasma fibrinogen normal as demonstrated by the eventual clotting. In prothrombin deficiency, in contrast, the bleeding time is also long and the clotting time normal or slightly prolonged, but the clot retraction is normal as well as the platelet count; the tourniquet test is positive and the plasma fibrinogen normal; the prothrombin concentration is low, usually below 20%.

In hemophilia, the bleeding time is usually normal but the clotting time is very long; the platelet count is normal and clot retraction normal after clotting eventually occurs. The tourniquet test is negative and prothrombin concentration and plasma fibrinogen are normal. In pseudo-hemophilia, in contrast, the bleeding time is prolonged and the clotting time normal. Clot retraction and platelet count are both normal, as also are the prothrombin concentration and the plasma fibrinogen; the tourniquet test is positive. Fibrinogen deficiency is relatively rare, but is chiefly characterized by the absence of clotting with normal or slightly prolonged bleeding time and normal platelet count and prothrombin concentration.

In summary, the importance of a careful history and physical examination of the patient, combined with such readily available hematological tests as the complete blood count with thorough study of the stained smears, the platelet count, bleeding and clotting times, clot retraction time and the one-stage prothrombin concentration test has been emphasized. These readily available methods will enable the physician to reach a correct diagnosis in many cases and will prepare the way for further investigation in those cases where more complicated methods are required.

BIBLIOGRAPHY

1. Alexander, B., deVries, A., and Goldstein, R.: "Prothrombin: A Critique of Methods for Its Determination and Their Clinical Significance," *New England J. of Med.*, 240:403, 1949.
2. Alexander, B., and Landwehr, G.: "Thrombasthenia and Thrombocytopenic Purpura, Report of Case Demonstrating Qualitative and Quantitative Inadequacy of Platelets," *New England J. of Med.*, 241:965, 1949.
3. Seegers, W. H., and Ware, A. G.: "Recent Advances in Our Knowledge of Prothrombin," *Amer. J. Clin. Path.*, 19:1, 1949.
4. Quick, A. J.: "The Coagulation Mechanism, With Special Reference to the Interpretation of Prothrombin Time and a Consideration of the Prothrombin Consumption Time," *Am. J. Clin. Path.*, 19:1016, 1949.
5. Quick, A. J., Shanberge, J. N., and Stefanini, M.: "The Coagulation Defect in Thrombocytopenic Purpura," *J. Lab. and Clin. Med.*, 34:761, 1949.
6. Quick, A. J., Shanberge, J. N., and Stefanini, M.: "The Role of Platelets in the Coagulation of the Blood," *Am. J. M. Sc.*, 217:198, 1949.
7. Quick, A. J., and Favre-Gilly, J. E.: "The Prothrombin Consumption Test: Its Clinical and Theoretical Implications," *Blood*, IV, 1281, 1949.
8. Stefanini, M., and Crosby, W. H.: "The One-Stage Prothrombin Consumption Test: Clinical Value in Identification of Thromboplastin Deficiency Diseases," *Blood*, V, 964, 1950.
9. Stefanini, M.: "Analytic Review: Prothrombin Conversion Factors and Accelerators," *Blood*, VI, 84, 1951.

A FATAL HEMORRHAGE DUE TO TRACHEOTOMY

ALBERT C. JOHNSON, M. D.*

In the past 5 to 6 years, a great many articles have been written commending the use of tracheotomy in cases of bulbar poliomyelitis, and in other cases where respiratory suppression is a factor.

The present case is reported, not to belittle this procedure, but to demonstrate a danger that was heretofore not considered, and to advise certain precautions to prevent recurrence of this incident.

G. W., a 17-year-old female, was admitted to the Maine General Hospital, on October 15, 1950. In September, 1949, the patient developed poliomyelitis, with involvement of both arms, intercostal muscles, and the left leg. Apparently there was no involvement of the recurrent laryngeal nerves. The patient had been treated in a respirator at the Eastern Maine General Hospital for 10 months. For 6 weeks previous to admission the patient had recovered sufficiently to be transferred to a convalescent home. At this time she was up and about, with some return of function to both arms, and a gradual increase in breathing capacity.

Two days before admission to the Maine General Hospital, the patient developed a cold. The day of admission she became dyspnoeic and cyanotic, with a temperature of 100° F. Examination showed atelectasis of the right lung and the patient was admitted for this reason.

Examination showed an underdeveloped, emaciated and apprehensive 17-year-old girl who was mildly cyanotic but not in acute pain. The trachea was shifted to the right, percussion was flat and breath sounds absent over the right chest. Chest expansion and contraction were poor; and the patient had difficulty in increasing intrathoracic pressure

sufficiently to cough well. A diagnosis of atelectasis was made.

The patient was placed in a respirator. This helped somewhat, though the signs of atelectasis on the right remained. Bronchoscopic aspiration was done on October 16th, and much thick mucopurulent secretion was removed from the right bronchial tree. This improved the atelectasis only temporarily, and bronchoscopy was repeated on October 20th, and 21st, 1950.

The patient continued to form thick bronchial secretions, and signs of atelectasis persisted, with gradual increase in temperature to 103° F. on October 21. Tracheotomy was done on October 22, 1950. Repeated aspirations were done through the tracheotomy tube (every 15 minutes) and by October 25, 1950, the temperature was normal, the chest was clear. Penicillin S. R. (2 c.c. daily) was started on admission. Aureomycin (1000 mgms. daily) was started on October 17, and Streptomycin (1 Gram daily) was started October 23. All antibiotic therapy was discontinued by October 25, 1950.

From this time on treatment was supportive. Some difficulty was encountered with the tracheotomy tube because of the respirator. A plastic diaphragm was obtained, and by using a loop of metal attached to the respirator, the diaphragm was retracted to a position below the tracheotomy tube. The patient complained of some odor from the tracheotomy and on one occasion during November, 1950, a slight infection was noted at the upper part of the opening. This subsided with treatment. The tube was changed repeatedly. Several attempts were made to remove the tracheotomy tube permanently but the patient objected because of a sense of suffocation and each time the tube was re-inserted.

* Associate Surgeon, Ear, Nose and Throat Section, Maine General Hospital.

On June 6, 1951, the patient suddenly began to bleed from and about the tracheotomy tube. Suction was used but within 10 minutes of onset of hemorrhage, the patient died. No difficulty with the tracheotomy had been noted previous to the onset of hemorrhage. An autopsy was obtained, and showed a perforation of the innominate artery at the bifurcation, with the tear extending into the right carotid artery and slightly into the subclavian. This hemorrhage occurred into the tracheotomy wound and was not due to tracheal erosion at the tip of the tracheotomy tube within the trachea.

Review of literature revealed one reference to an erosion of the innominate artery into a tracheotomy wound but the original article was not located. To us this was an original experience. It is possible that the opening into the trachea was too low. The patient was thin, with a long neck and the tracheotomy tube was inserted through an incision in the 6th and

7th tracheal rings. Also, the action of the constantly moving respirator diaphragm must have played a part, since the hemorrhage occurred seven and one-half months after the tracheotomy was done.

It is advised, therefore, that if a respirator is to be used in such cases, the tracheotomy be done as high as possible without disturbing the cricoid cartilage. The second and third tracheal rings would seem to be best. Also the respirator diaphragm should be entirely below the tracheotomy tube in order to prevent constant motion of the tube through contact.

BIBLIOGRAPHY

Tracheotomy in bulbar poliomyelitis. Priest, Boies, Glotz: *Annals of Otolaryngology, Rhinology and Laryngology*, Vol. LVI, No. 2.

Mechanism of Suffocation in Spinal Bulbar Poliomyelitis and Experiences with Oxygen Treatment. Arne Sjöberg, Stockholm, Sweden: *Archives of Otolaryngology*, Vol. 52, No. 3.

Tracheotomy in Poliomyelitis, Strobel and Canfield: *Ibid.*

HEMORRHAGIC TENDENCY OF ASPIRIN THERAPY: A CASE REPORT

JOHN H. SCHAEFFER, M. D., ELTON R. BLAISDELL, M. D., and STANLEY E. HERRICK, JR., M. D.*

Although aspirin has been used in enormous quantities during the past fifty years, with or without the consent or guidance of physicians, severe reactions apparently have been relatively rare. Though many people have a mild sensitivity to the drug most can take it with impunity. Most of the cases of death due to salicylates that have been reported would appear to be the result of acid-base and respiratory disturbances. The following case, in which self medication with aspirin appears to be the precipitating factor in a serious and near-fatal hemorrhage, prompted a review of the recent cases at the Maine Medical Center in which salicyl compounds were given and prothrombin concentrations were determined at intervals during therapy. Practically all cases treated with sodium salicylate or paraamino salicylic acid exhibited some drop in prothrombin concentration, several as low as 20%. None, however, showed any clinical signs of bleeding.

Case:

F. S. N., a 74-year-old retired white male, was admitted to the medical service of the Maine General Hospital on March 28, 1951, because of hematemesis. He had been seen in the Urology Clinic in the morning, where he had had a dilatation of a urethral stricture. This procedure was difficult and was followed by some bleeding which apparently stopped

within a short time. He then went home and slept for about one hour. On awakening he complained that he was very cold, arose from the bed and vomited eggs which he had eaten a few hours before. As he returned to bed he fainted and fell on the floor. On regaining consciousness he vomited an unknown amount of bright red blood and fainted again. In the ambulance and on arrival at the hospital he vomited more bright red blood.

Past History: Diabetes has been known for five years. He was placed on a diet, but did not adhere to it; he took 20 units of protamine insulin daily. He tested his urine infrequently and attended diabetic clinic irregularly. He has had no episodes of coma or severe acidosis. Hemoglobin determined in the diabetic clinic on November 18, 1950, was 10.5 grams. Transurethral prostatic resection had been done elsewhere about three years ago and was repeated at this hospital one year ago, the pathological report being adenocarcinoma of the prostate, grade I. He had received Stilbesterol 5 mg. three times daily and Mandelamine 60 gr. daily, and had had occasional urethral dilatations since that time. His alcoholic intake had been about one fifth of whiskey a day for many years, ceasing about four years ago. At a later date it was learned that he had complained of severe, generalized headaches occasionally for the past few years, but daily for the past two weeks. For this he had taken 60 grains of aspirin daily for the two weeks.

* From the Department of Internal Medicine, Maine General Hospital.

Physical Examination: The patient was an elderly, obese white male, in acute distress, irritable, and uncoöperative. B. P. 136/70. Temperature 103, rectally. The skin was somewhat pale and dry. There were numerous hemorrhagic papular lesions 2 to 3 mm. in diameter over both buttocks. Head and neck were essentially negative. The lungs contained a few scattered fine inspiratory rales. The heart was regular, rate 120, with no enlargement nor murmurs. The abdomen was obese and somewhat rigid. Faint peristaltic sounds were audible throughout. Genitalia were normal but shortly after admission he began to bleed through the urethra. Rectal examination revealed enlarged, hard prostate, but light brown stool with no evidence of blood.

Laboratory Data: Hemoglobin 10.9 gms. Hematocrit 32, WBC. 10,250. Prothrombin time over 5 minutes—concentration 0. Bleeding time exceeded 6 hours, clotting time over 24 hours. Thymol turbidity 3.5 units, bromsulphalein 24% retention. Blood urea nitrogen 30 mg. %.

Clinical Course: After admission he vomited about 100 cc. of bright red blood. His pulse remained rapid and his systolic pressure dropped to 100 mm. He was treated with blood transfusions and received 2500 cc. blood in the course of the night. He passed large quantities of bright red as well as dark blood by rectum and also passed some blood by urethra. 72 mg. of menadione were given intravenously. The following morning he had apparently stopped bleeding and felt well. His hemoglobin was then 10.0 gm., hematocrit 33. He remained anuric for a period of 28 hours after admission, and probably for a total period of 36 hours. He then began to pass normal amounts of urine: 1400 to 2800 c.c. per day. The urine contained moderate amounts of albumin and over 100 red and white blood cells per high power field. The cells disappeared rapidly but the albumin persisted in subsequent specimens. His prothrombin concentration on the second day was 79% of normal and his clotting time was 19 minutes. He received further treatment with menadione and vitamin C. On April 2, a gastro-intestinal X-ray examination failed to reveal pathology in the esophagus, stomach or duodenum. On April 3, his total protein was 6.05, albumin 3.50, globulin 2.55. His blood urea nitrogen was 72 mg. but on the following day had dropped to 52 mg. His bleeding time was then 3 minutes, clotting time 17 minutes. The acid phosphatase was 0.2 King units. On April 6, he was discharged, apparently recovered. He was followed in the diabetic clinic and on June 13, 1951, was found to have a hemoglobin of 11.2 gm., bleeding time 2 minutes, clotting time 10 minutes, prothrombin time 16 seconds, 93% normal concentration. At the time of writing, twelve weeks after discharge, he has had no

further recognized bleeding episodes, and has felt quite well.

Comment:

Some fifty years ago the German pharmacologist Binz¹ advised caution in the use of salicylic acid because of the occurrence of hemorrhages from the mucous membranes. French writers had previously asserted that the drug may cause abortions. The mechanism was unexplained until 1943 when Link,² found that dicumarol causes a lowering of the prothrombin concentration in the blood and that dicumarol may be degraded into salicylic acid. He noted that in rats injected with salicylic acid a slight hypoprothrombinemia developed, which was accentuated if they also received a diet deficient in vitamin K. His findings were immediately confirmed by the clinical investigations of Meyer³ and Shapiro.⁴ Since that time, numerous studies have been conducted to determine the effect of various salicyl compounds, and it has been proven that salicylic acid, aspirin, sodium salicylate, and paraamino salicylic acid all may have the same effect.

Butt and his associates⁵ studied prothrombin levels in 113 rheumatic fever patients, 51 of whom received salicylate, and found that on doses of 50 grains daily there was little or no change in the prothrombin concentration, but on 100 grains daily there was a decrease in a few patients, while after they had received 150 grains for two days there was a decrease in "a good percentage." Exact figures are not given. In this series the patients were on each level of intake for one week.

Owen and Bradford⁶ studied a series of 25 cases of acute rheumatic fever treated with 10 grams of sodium salicylate daily for 21 to 60 days. They found a drop to 20-29% of normal in 10 cases (40%), and below 20% in 2 cases (8%). They noted the maximal drop occurring in the second or third week in 18 cases (72%), from the first to the sixth week in the remainder. The pronounced depression lasted one to three days except in the most severe cases, and was followed by a gradual return to normal in all cases despite continuation of the drug. They noted a decreased effect during second courses of therapy. These studies suggest that had Butts prolonged the course of lower levels of medication he might have noticed a higher incidence of hypoprothrombinemia.

The question arises why a lowering of the prothrombin level should occur in some patients whose intake of the drug is low, and not in others with a higher intake. This might be explained in part as poor absorption, since the blood levels do not necessarily correspond to the daily intake. It might further be explained by the observation of Link² that in rats salicylate was more effective in changing the pro-

thrombin level if there were also a dietary deficiency of vitamin K. This correlation might also explain the fact that severe hemorrhages attributed to aspirin have been relatively rare in this country and have been reported more frequently in post-war years in European countries, particularly Great Britain, Italy, and France. Possibly dietary deficiencies, particularly of green, leafy vegetables, have lead to a widespread vitamin K deficiency in the latter countries. In our case, it is postulated that liver damage may have caused an asymptomatic hypoprothrombinemia with a resultant increase in susceptibility to salicylate. This would parallel the well-known susceptibility of patients with even slight liver damage to dicumarol. The efficiency of vitamin K in conjunction with salicylates in preventing hypoprothrombinemia is well established.

Conclusions:

Studies on prothrombin levels of patients on salicylate therapy indicate that the decrease is insignificant in the majority of cases. The widespread use of aspirin without harm indicates that the danger of massive hemorrhage is slight. Salicylates, however, should be used with caution in persons who have a

dietary history suggestive of vitamin K deficiency, who have liver disease with impaired prothrombin production, or who have a bleeding tendency of any origin. The recommended dosage of 1 mg. vitamin K for each gram of salicylate should be followed where suspicion exists.

BIBLIOGRAPHY

1. Binz, C.: *Vorlesungen uber Pharmakologie*. Berlin. 2nd ed., 1899. (Quoted by Link et al., *vid*, *inf*.)
2. Link, K. P., Overman, R. S., Sullivan, W. R., Huebner, C. F., and Sheel, L. D.: Studies on the Hemorrhagic Sweet Clover Disease: XI. Hypoprothrombinemia in the Rat Induced by Salicylic Acid, *J. Biol. Chem.*, 147:463-474 (Feb.), 1943.
3. Meyer, O. O., and Howard, B.: Production of Hypoprothrombinemia and Hypocoagulability of the Blood with Salicylates, *Proc. Soc. Exper. Biol. and Med.*, 53:234-237 (June), 1943.
4. Shapiro, S., Redish, M. H., and Campbell, H. A.: Studies on Prothrombin: IV. The Prothrombinopenic Effect of Salicylate in Man, *Proc. Soc. Exper. Biol. and Med.*, 53: 251-254 (June), 1943.
5. Butt, H. R., Leake, W. H., Solley, R. F., Griffith, G. C., Huntington, R. W., and Montgomery, H.: Studies in Rheumatic Fever, *J. A. M. A.*, 128:1195-1200 (August), 1945.
6. Owen, G. C., and Bradford, H. A.: Salicylate Therapy in Acute Rheumatic Fever, *Ann. Int. Med.*, 25:97 (July), 1946.

ANALYSIS OF THE CHEST SURVEY PROGRAM AT THE MAINE MEDICAL CENTER

JACK SPENCER, M. D., and JOHN H. SCHAEFFER, M. D.*

The chest survey program was started at the Maine General Hospital in January, 1947. In this type of chest study a 4 x 5-inch photograph of a fluoroscopic image of the lungs takes the place of the routine large films (14 x 17 inch). The cost is thus much less than that of larger films, making surveys of large populations economically feasible. The program has been expanded continually since that time; in 1950, survey examinations were made on 10,661 persons. It was considered to be of interest to review the results of this study in order to ascertain the number of cases of tuberculosis, carcinoma, and other pathology which were discovered, and to compare the nature of the cases of tuberculosis found in the survey with those discovered on the large films obtained on symptomatic hospital patients.

Although it was our desire that every patient admitted to the hospital should have a chest X-ray, we found that of 8,018 adult admissions for the year, 1,453 had survey films, and an additional 1238 had large films only, a total of 2,691 or 33.6% of admis-

sions. In addition, 383 patients were X-rayed while in the accident ward, a high, but unknown number of these being admitted immediately. Also, many clinic and private patients had films taken, either here or elsewhere, a short time before admission. It is the usual policy, for example, to have a chest film of each pre-natal patient during the pregnancy, but not at the time of admission for delivery. All ambulatory clinic patients are also examined. Our percentage, therefore, appears much lower than it is.

It has been the usual procedure to request 14 x 17-inch films in all cases where the history or physical examinations suggest pulmonary disease. Survey films are taken where no pathology is suspected. The pulmonary pathology found through the survey program should, therefore, represent unsuspected disease which would not otherwise have been found at that time. Since out-patients have not all been referred by physicians this is not necessarily true for them, as evidenced by the 3 cases of known tuberculosis found.

Of the 10,661 survey films read, 668 were considered abnormal (Table I). On reviewing these

* From the Departments of Roentgenology and Internal Medicine of the Maine General Hospital.

SUMMARY OF SURVEY CHEST PATHOLOGY
TABLE I

Total surveys	10,661
Active tuberculosis	22
Minimal	14
Moderately advanced	7
Far advanced	1
Tuberculous pleural effusion	1
Previously known tuberculosis	3
Bronchogenic carcinoma	2
Metastatic carcinoma	5
Pleural effusion due to carcinoma	2
Hodgkin's disease	1
Leukemic infiltration of lungs	1
Pneumonia	25
Pleuritis without effusion	6
Coccidiomycosis (previously known)	1
Lung abscess	1
Pulmonary infarct	1
Post-irradiation fibrosis	
Pulmonary fibrosis:	
No clinical significance	176
Not followed	33
Hiatus hernia	1
Cardiac pathology	139

films, the majority shows abnormalities of little or no significance. This includes sclerotic or tortuous aorta, and slightly enlarged heart. Twelve patients had marked scoliosis, and two patients were noted to have cervical ribs. A few had bifid ribs, azygos lobe, other structural abnormality, and many diaphragmatic adhesions were seen to which no clinical significance could be attached. Since not all of the observers reported hilar or parenchymal calcifications no accurate figure could be obtained from this in the absence of other lung disease, but of 668 films reviewed, only 64, or 9.3% had hilar or parenchymal calcification, and five had pleural calcification. Cardiac abnormalities of clinical significance were found in 139 or 1.21% such as evidence of congestive failure, marked mitral configuration, or greatly enlarged heart shadows.

One case of lung abscess was discovered in a fifteen-year-old girl who had seen her physician because of symptoms referable to an accompanying anemia, but in whom no lung disease was suspected. Two cases of primary bronchogenic carcinoma were found in apparently normal individuals (0.02%). Five patients were found to have metastatic pulmonary carcinoma, of which three had previously been treated surgically. Of three cases of pleural effusion, one was tuberculous, two the result of malignancy. One patient from the Tumor Clinic was found to have mediastinal Hodgkin's disease, another leukemic infiltration, and a third marked post-irradiation fibrosis. One hospital patient had a previously undiagnosed pulmonary infarction. One case of basal

consolidation was found to have a hiatus hernia, the lung findings clearing completely after corrective surgery.

Of 19 cases reported to the state health department as tuberculosis, 4 were found to be inactive; 3 previously known to them, though not to the physician treating the patient; one with pleural effusion was found to be the result of metastatic malignancy; one patient had bronchiectasis, and one was a previously known case of chronic coccidiomycosis. Of the cases in which a definite diagnosis from the single film was not possible, subsequent clinical, laboratory, and X-ray data revealed active tuberculosis in five cases. Thus a total of 12 cases of tuberculosis were discovered, of which 8 were minimal, and one was far advanced. It may be significant that only one was a patient in the hospital at the time of the survey and at the time the diagnosis of tuberculosis was confirmed.

During the same period, 1,238 patients in the hospital had 14 x 17-inch chest films taken. Fifteen were found to have active tuberculosis. Of these, five were known to have the disease before admission. Of the ten new cases (0.81%), five were admitted for pulmonary disease but thought to have pneumonia, two had pleural effusions, and three were admitted for other reasons, the chest pathology being considered of secondary importance. This did not necessarily prove to be true, for one man admitted for intestinal obstruction had tuberculosis enteritis, and one woman sent in as Hodgkin's disease had minimal pulmonary tuberculosis not evident on a recent survey film taken elsewhere, but had cervical tuberculous adenitis and later died of tuberculous meningitis.

Of the fifteen cases diagnosed by large films eight were placed in a sanatorium; three were treated at home; three died. One case, a student nurse, remained at this hospital throughout the necessary period of treatment, and one, in whom the diagnosis was only recently confirmed, is hospitalized pending admission to the sanatorium.

In the group diagnosed by survey 14 of the 22 (63.6%) had minimal tuberculosis and one had far advanced tuberculosis. In the hospital group of ten patients with pulmonary symptoms or signs, only one, who died of the disease, had minimal tuberculosis, and six had far advanced disease (Table II).

TABLE II
ANALYSIS OF HOSPITALIZED TUBERCULOUS CASES

Total large films on house patients	1,238
Total tuberculosis	15
Unknown tuberculosis — (0.81%)	10
Minimal	1
Moderately advanced	1
Far advanced	6
Pleural effusion	2

CONCLUSIONS

During the four years that the survey program has been functioning at the Maine Medical Center there has been a steady increase in its use. Figures for the first five months of 1951 indicate that this increase is continuing during the current year. The percentage of hospital patients examined is also increasing, although it is not as high as desired. The clinical observation of these patients, once the sus-

picion is aroused is also good, though not perfect. Since the cost of the program places a chest film within financial reach of those who otherwise would not or could not pay for a large X-ray film, it is felt that the program offers a valuable adjunct to the services of the Maine Medical Center, particularly in relation to the out-patient department, as well as the hospital cases.

EYEGROUND CHANGES OF PARTICULAR IMPORTANCE TO THE GENERAL PRACTITIONER

PAUL MAIER, M. D.

Over the years it has become increasingly evident that changes in the eyegrounds will frequently reflect abnormalities elsewhere in the body. Indeed such signs may presage disease in other systems. Since the retinal vessels are the only ones which are so directly and so readily accessible to examination, it behooves us to rely on them as a valuable source of information regarding the state of health of the entire organism.

Quite a definite correlation between the state of the retinal vessels and those of comparable size elsewhere in the body has been shown to exist. This leads us to a consideration of the sclerotic, hypertensive, and senile changes of the retinal arterial system, and of the interrelationship of one with the other. Let it be understood at the outset that though we speak of each as a separate entity, the fact is that any two or all three may be co-existent. In such a case it is often difficult to assess the relative importance of each. Correlation with other physical findings will be of some importance.

There are three fundamental changes which take place in the retinal arteries and arterioles. These include: first, the structural changes in the vessel walls which accompany the aging process — simple senile sclerosis; second, the changes of true arteriosclerosis, or arteriolosclerosis; and third, the changes which accompany an increase in tone of the vascular musculature which lead to the picture of angiospastic retinopathy. All these findings are quite faithfully reflected by the arteries and arterioles of the kidneys, perhaps less so by the small vessels of the brain, pancreas and spleen.

Sclerosis of the vessels due simply to the aging process is the result of an increase in the fibrous and elastic tissue of intima and media. Accompanying the deposition of these fibers is a thickening of the vessel wall, a dilatation of the lumen because of decreased

elasticity of the new tissue, and an increase in tortuosity of the vessels. The senile sclerotic process is said to begin at about the age of forty, increasing to become quite marked at age sixty or seventy in some instances.

Ophthalmoscopically the changes are manifest by an increase in apparent width of the arteries, an increase in brightness and width of the light streaks, and an increase in tortuosity of a more or less serpentine character.

Sclerosis of the smaller vessels due to the arterio-sclerotic process is the result of increased deposits of hyaline and lipid material, first sub-endothelially, then spreading to include the adventitia. The larger arteries of the retina first show lipid deposits in the intima. These increase in size to form atheromatous plaques. Occasionally one will break through the endothelium lining the lumen to form an atheromatous ulcer. The plaques and ulcers form nodular thickenings in the walls which cause irregularities in the caliber of the vessels. Because of loss of elasticity, these vessels, too, become dilated and show an increase in tortuosity. However, in this instance, the tortuosity is rather more angular than serpentine. Ophthalmoscopically, the changes are manifested as widening of the light streaks, increase in tortuosity of the vessels, irregularly distributed areas of localized narrowing of the arteries, and the so-called arterio-venous crossing defects. These latter are apparent interruptions in the course of the veins, attributable to fibrous thickening of the adventitial coat which is common to both at the point of crossing. It is not due to spasm of the artery as was once thought. It is clear that the ophthalmoscopic picture will vary with the extent and duration of this disease. When the arteriosclerosis is severe enough, there results a chronic malnutrition of the vessel walls. This leads to escape of blood corpuscles by diapedesis

in all layers of the retina to form both the so-called flame and pin-point hemorrhages. It also leads to deposits of lipoid and hyaline materials in the retina to form the yellowish, sharply outlined, sometimes hard-looking arteriosclerotic exudates. The end result of the arteriosclerotic process may be complete occlusion of the central retinal artery or a branch, due either to plugging by the atheromatous plaque, or thrombosis about it, or to a combination of these plus spasm of the vessel wall.

Spasm of the vessel wall is intended to imply an increase in tone of the muscle fibers which causes a continuous narrowing of the lumen so long as the exciting factor is active. This is a reversible process unless it has been extant long enough to cause organic change in the vessel wall, in which case the lumen is permanently narrowed. The organic changes which take place after prolonged spasm are a hyaline thickening of the walls of the smaller vessels, and hypertrophy of the media of the larger ones. These changes, both functional and organic, are often superimposed on pre-existing arteriosclerosis of varying degrees of severity. Thus the possibilities of having variegated fundus pictures are many. If the spasm—in combination with organic changes or without—is severe enough, it will lead to circulatory stasis with ensuing edema, hemorrhages, and cotton-wool exudates in the retina. These latter differ from the hyaline and lipoid deposits of arteriosclerosis described above, in that the cotton-wool exudates contain plasma and fibrin, are white, have a fluffy appearance with indistinct margins. The simplest ophthalmoscopic picture of arterial spasm, generalized attenuation throughout the arterial tree, is seen in mild to moderate benign essential hypertension in young persons and in pre-eclampsia of mild to moderate degree. In severe arteriospasm such as occurs in severe acute glomerulonephritis, in the malignant phase of essential hypertension, and in eclampsia, there are seen in addition varying degrees of edema of the retina and optic disc, hemorrhages and cotton-wool exudates in the retina, and even, as in severe eclampsia, detachment of the retina. All of these offer at best a poor local and systemic prognosis.

We have noted above that certain vascular signs may be accompanied by both superficial (flame) hemorrhages, deep (punctate) hemorrhages, hyaline and lipoid deposits in the retina, and cotton-wool exudates. In diabetics all these signs may be observed, but when they are they must be considered to be characteristic not of the diabetes, but rather of arteriosclerosis and spasm. In other words, the picture may be compounded by the simultaneous presence of two or even three disease entities. Rather more typical of the diabetic are the tiny, punctate, red spots which lie deep in the retina characteristically in the posterior pole. These have been considered to

be hemorrhages, but more recent investigation indicates that they are capillary aneurysms.

This explains why the "hemorrhages" so seldom disappear. Be that as it may, the only known prerequisite for their appearance is diabetes of long duration. It would almost seem fair to say that even if the tiny aneurysms alone are seen, the patient has had diabetes for at least ten years. They are often seen in the absence of any sign whatsoever of either vascular degeneration or spasm. In a large group of diabetics observed, about 18% showed the tiny retinal "hemorrhages." In a somewhat smaller group of non-diabetics, they were seen in only 3%.

Another fundus sign of diabetes, again of long duration, is the presence of hard-looking, sharply and irregularly outlined white and yellowish-white patches of exudate. Frequently these are confluent and form a variety of figures. They contain colloid, hyaline, and lipoid materials.

Still other cases of diabetes of long duration will show large pre-retinal hemorrhages. These may strikingly reduce the vision, especially if they burst into the vitreous. Perhaps the most devastating of all the diabetic retinopathies is the proliferative type. This is characterized by the abundant formation of new vessels and fibrous veils which may extend far forward into the vitreous, and which may lead to retinal detachment and inevitably to blindness.

The etiological factor which causes such destructive retinopathy is by no means certain. But there is good and carefully studied evidence which would indicate that the more nearly perfect the control of the diabetic state by diet and insulin, the fewer are the ocular, and hence the systemic complications.

The blood dyscrasias is another group of diseases in which ophthalmoscopic examination sometimes reveals additional diagnostic information. In the leukemias the veins may be tremendously engorged, may have the appearance of linked sausages. Both the leukemias and pernicious anemia may show superficial hemorrhages which have white centers. These are said to be more often present the more severe the degree of the anemia. All types of exudates may be present also.

SUMMARY

Examination of the fundus of the eye often provides valuable information regarding the condition of the arteries not only of the eyes, but also of other bodily systems, particularly the kidneys, brain, spleen, and pancreas. In diabetes, too, such examination affords us an easily accessible source of prognostic and therapeutic information. In certain blood dyscrasias we are occasionally presented with an additional diagnostic weapon.

REFERENCES

1. Elwyn, Herman: Diseases of the Retina, The Blakiston Co., 1946.
2. Gordon, Dan M.: Journal of the A. M. A., 146:813, June, 1951.
3. Sheppard, L. Benjamin: Quarterly Review of Ophthalmology, 7:3, March, 1951.
4. Maumence, A. Edward: Archives of Ophthalmology, 45: 572, May, 1951.
5. Duke-Elder, Sir W. Stewart: Textbook of Ophthalmology, Vol. III: C. V. Mosby Co., 1940.
6. Tassman, I. S.: The Eye Manifestations of Internal Diseases, Second Edition, C. V. Mosby Co., 1946.

ADMINISTRATIVE

ANSWERING HOSPITAL COST CRITICISMS

DONALD M. ROSENBERGER, Director, Maine General Hospital, Portland, Maine

I can think of no more timely subject to present to the members of the Maine Medical Association than that of answering hospital cost criticisms. Hospital costs do need explaining. There perhaps is no better opportunity to explain hospital costs than at the time patients are referred to the hospital for elective care, and no better way of effecting the explanation than through the doctor-patient relationship.

First, a word about the changing nature of hospital care. As recently as seventy-five years ago hospitals, by and large, took care of only one segment of the population, the charity segment, and the institutional function was financed almost entirely by philanthropy. Hospital care was largely restricted to room and board. Today multiphasic hospital care, complete with stand-by services, is purchased increasingly by private patients, contract groups such as Blue Cross and various prepayment insurance programs, governmental units and organized charity (as symbolized by the Community Chest) for the benefit of individuals.

The present complexity and extent of hospital care has resulted in a major change in hospital finance. This change has been from one of financing the hospital as an institution toward one of financing the cost of care rendered to individual patients by hospitals. Or, to state it another way, the changing order of hospital care is developing programs to take care of individuals rather than hospitals.

The magazine *Trustee*, Journal for hospital governing boards published by the American Hospital Association, in reviewing rates of Maine General and eleven other hospitals over a span of 60-plus years, points out that grandfather was right when he complained about high costs of hospital care in 1888. The article continues by saying that grandfather would have less reason to complain about today's costs because his hospitalization actually cost him more in real wages than it costs his grandchildren today.

There is no doubt that hospital patient day costs have risen sharply during the past 62 years, but the factors of shorter stay and smaller loss of income because of fewer lost days on the job today must be considered in relation to current hospital costs. At Maine General Hospital in 1888, *Trustee* notes, the cost of grandfather's stay was \$1.50 per day — and the average stay at that time was 52 days. After a little figuring, grandfather realized that with his average income he had to work 72 days to make up the pay he had lost plus the cost of his hospital care. This amounted to 23% of his year's earnings.

In 1950, the comparison continues, grandson stayed in the Maine General Hospital the average 8½ days for the same type of operation that his grandfather had before him. A little figuring told grandson that he would have to work 21 days at average pay to make up the time he lost on the job, plus his hospital bill. This amounted to only about 7% of his year's earnings. According to *Trustee* grandson mused, "Maybe I'm better off than I thought."

These two patients 62 years apart tell a story that is important to every person today. They prove that despite today's comparatively high patient day costs, today's patients are actually paying less in real wages for hospital care than patients were paying 62 years ago when patient day costs were low. They prove that the mere increase in patient day costs is not an indication of increased total cost of hospital care to the patient.

But what about the cost of care measured in terms of the patient who is not a wage earner? Here the result is of the same nature but perhaps not so dramatic. The American Medical Association's economics' expert, Dr. Frank G. Dickinson (Ph.D.), has revealed that the cost of hospital care has not gone up as far or as fast as the cost of living. Using Department of Labor figures, Dr. Dickinson shows that for the year 1949 the cost of living was 69% higher than

in the "normal" years of 1935-1939. By comparison, hospital rates were up 127%, but the average stay in the hospital was shorter, so that the patient's bill increased only 67%, or two per cent less than the increase in the cost of living. (Dr. Dickinson states that the comparative figures for 1950 have not yet been completed, but he believes preliminary reports indicate no significant changes in the figures reported for the year 1949.)

These comparisons of hospital charges with real wages and with the cost of living prove beyond question that while hospital costs have risen sharply they have risen slightly less than the cost of living, and have, in fact, decreased remarkably in relation to average income.

So long as hospitals were financed as institutions, and charges for services to patients were frequently below costs, the need for explaining charges was not so great as it is today. In the development of programs to take care of individuals rather than hospitals, there is increasing recognition on the part of all concerned to inform individual members of the public about hospital services and costs. In developing this function, members of the medical profession can be increasingly effective in winning of public understanding, confidence and support for their hospitals.

To best fulfill this function, I would like to suggest that organized medicine in Maine, working through each hospital medical staff and each county medical society, accept responsibility to acquaint its membership with costs of hospital services and of explaining hospital charges to patients. Obviously the facts and figures and the general pattern of hospital policy must be gotten through the administrator and the governing boards of these hospitals with whom there must be a close working relationship and mutual understanding of what is to be done and how to do it. I think it is only fair to say that the support and active assistance of the medical profession in this matter is of such vital importance to the entire community that if the administrator or the governing board of your hospital does not request the assistance of the medical staff, the staff should suggest offering its services to them.

In planning programs designed to educate the public to hospital services and the costs thereof, it must be remembered that hospitals are service organizations. In light of the changing order of hospital care, it must be appreciated that hospitals do not handle their own money but handle the money of others. Hospitals do not want any money for themselves, but only to provide adequate care to those needing their services.

Compulsory health insurance is an ever-present challenge to our voluntary hospital system so long as

the public is not educated to the purchase of good hospital care. On the expense side of good care, hospitals have the mounting costs of rapidly rising standards — and the moral responsibility to invest every dollar entrusted to them in the best possible patient care. On the income side, hospitals have revenue from purchase of hospital care by private fees, pre-payment insurance of various types, government and organized philanthropy.

Each of these categories of purchasers of hospital care represents a separate segment of the total population. If Blue Cross, organized philanthropy, and government at all levels will adequately meet the costs of care rendered their respective segments of the population, our voluntary hospitals can keep pace with demands made upon them. The development of standardized accounting methods makes it possible for hospitals to better acquaint the public with the cost of services rendered.

In order that there may be mutual understanding as to the purchase of hospital care by these various segments of the population, let us look for a moment at each category individually. Those patients who choose private or semi-private accommodations are charged fees somewhat more than cost. Traditionally, this practice has been followed to help make up for inadequate payment for care rendered charity patients. The changing order of hospital finances requires that full charges for all types of care include allowances for improvement of services. Contract groups such as Blue Cross want to pay for themselves only. For the most part, Workman's Compensation and the federal government will purchase standard service care in accordance with the government formula used in the determination of per diem costs.

It is important that these questions be asked: Do the large majority of Blue Cross subscribers, particularly those who select private and semi-private accommodations know the value they have been getting? Have hospitals succeeded in persuading government at state and local levels and Community Chests that hospital care of the medically indigent must be purchased on a cost basis if the private patient is not to be surcharged to make up the difference? Is a hospital deficit a sign of bad management? Or does it mean service rendered but not paid for?

The American people do not pay enough for health: but the American psychology is to pay for a quality product. They will not forgive our voluntary hospitals if the hospitals fail to deliver quality care. Nor will the American people forgive hospitals if they learn that justifiable and explainable costs are the reasons for failure to deliver it.

The first criteria in providing good hospital care is that hospitals discharge their moral responsibility of

investing every dollar entrusted to them in the best possible patient service. The second criteria is that hospitals forge ahead in the changing order of hospital care with programs in which each segment of the population purchasing service will be educated to paying its full share of rate schedules which are related to full costs and adjusted to encourage the best possible distribution of quality health services to patients.

Hospitals have a three-fold obligation. They are obligated to use funds for the best possible hospital care. They are obligated to utilize the services of every member of the hospital family in telling the community its needs in terms of good hospital services. Last, but not least, they are obligated to make plain responsibilities of private patients, contract groups, governmental units and organized charity and then to do everything possible to see that these responsibilities are fulfilled.

Mr. John N. Hatfield, shortly after completing his term as President of the American Hospital Association one year ago, had this to say about hospital costs:

"I am concerned about the public's insistence that hospital rates are too high. It is another way of saying hospital costs are too high. An enlightened public would not make this accusation. People will talk. We

must see to it that we give the public true facts about our hospitals so that they will know what they are talking about. In this connection we should stop talking about per capita per diem cost of hospital care and refer to cost per stay. Despite the devalued dollar; despite the high cost of supplies, equipment and labor; despite the use of new and expensive drugs unheard of three decades ago; despite new and complicated procedures; and despite departmentalization of hospital services, it costs less today per each instance of hospitalization than it did 30 years ago. Furthermore, results are better, more lives are saved and patients are out and back at work much sooner. These facts must be gotten over to the public."

As an individual member of the Maine Medical Association and as a doctor who refers or treats patients in community, non-profit hospitals, you personally and through staff or county medical society action can fulfill a most important educational function in meeting the greatest need of our voluntary hospitals today. You can do this by learning about costs in your own hospitals and by coöperating with and assisting in the public education efforts of your hospitals in explaining these costs to your patients, to your friends, and to your neighbors who look to and are dependent upon your hospitals for adequate care in time of need.

STATE AID — A CONTINUING PROBLEM

JOHN C. BARKER, Assistant Director, Maine General Hospital

In 1948, the State of Maine, through its Hospital Aid program was dispensing annually an appropriation of \$578,000 to assist in the payment for hospital care rendered to residents of the State, who, because of their own inability to meet the burden of hospital bills, needed such assistance. Although the amount seems large at first glance, its final apportionment to individual cases resulted in a unit payment of only about \$4.17 per patient day to hospitals accepting State Aid patients. In contrast to the amount of this payment stands the much higher cost of providing adequate hospital care. At the Maine General Hospital, for example, the average patient day cost for 1948 was \$12.72 or \$8.55 more than it received. By applying all of its endowment and Community Chest income, plus payments collected from the patients themselves, this per diem loss was reduced to \$4.73 but even at this figure the year's loss was \$181,009. In proportion to the number of patients accepted, more than fifty other Maine hospitals experienced similar losses.

Staggering toward insolvency under the financial load thus imposed, these hospitals, through their

state association made a desperate appeal to the 94th Legislature, in session during the early months of 1949, for a more equitable distribution of this charitable burden upon all of the people of Maine by means of an increased appropriation for the Hospital Aid program. The Legislature's failure to heed that appeal brought the impending crisis still nearer. How could our hospitals continue?

Non-paying patients obviously cannot be given hospital care for nothing; someone must pay for it. The day of large private philanthropic donations has passed and unless government or other organized charities pay the full cost of services rendered to medically indigent patients, the hospital must carry this load at the expense of some third party or by means of reduced quality of care. It cannot give away what it does not have, anymore than a merchant can sell his product for less than cost without facing eventual bankruptcy. Being fully aware of this fundamental but inexorable law of solvency, the Maine General Hospital reluctantly adopted three undesirable yet necessary procedures.

First, the cardinal principle that there is only one standard of medical care — the best — had to be compromised. Many essential items of hospital maintenance, replacement of obsolete equipment and planned advances in special services, all of which would have contributed to the better care of the patient, had to be pruned for lack of funds to finance them.

Second, the coöperation of our referring doctors and the communities they served was solicited toward the end that special financial arrangements might be made for the full payment of certain elective admissions which would otherwise become part-pay State Aid cases. Great credit is due to many of the small towns which voluntarily made full payment from limited welfare appropriations for patients, who, because they had received no prior relief, were technically eligible for assistance from the Hospital Aid program.

Third, and most significant, hospital rates and charges to paying patients were advanced several times between 1948 and 1951, thereby unfairly imposing upon this one class of people an added charitable burden which should be shared by all the people of the State.

With all of our other hospitals that accept non-paying patients facing the same problem and meeting it by various similar devices designed to make income equal expense, the Maine Hospital Association became convinced that the only salvation for its members lay in a public educational program that might lead to recognition and assistance from the next meeting of the Legislature. The balance of 1949 and all of 1950 was accordingly spent in spreading before the people of the state, by all available means, the story of the inadequacy of Hospital Aid for the care of our medically indigent Maine citizens.

In this effort, hospital board members, staff doctors, administrators, women's auxiliaries, volunteers and employees all joined. Service clubs, medical societies and church groups were addressed, meetings of selectmen in our neighboring towns were attended and the newspapers coöperated splendidly by generous reporting and favorable editorial comment. Wide distribution of a simply prepared but highly

effective booklet carried the story still farther and resulted in the submission to the Legislature of over 25,500 signed requests that State Aid payments to hospitals be made adequate to pay for the cost of caring for charity hospital patients.

Finally, in the early months of 1951, as its session drew toward a close, the 95th Legislature, with strong urging from our Governor, increased the Hospital Aid appropriation from \$578,000 to \$1,000,000 for the first year of the biennium and to \$800,000 for the second year. The hospitals will exert every reasonable effort to have the second year appropriation increased to \$1,000,000 through use of the State's Contingency Fund.

It is estimated that this increase will raise the per diem rate paid to hospitals for the care of State Aid patients from the average \$4.17 figure of 1948 to \$6.50 or possibly \$7.00, depending on some variable factors. Percentage-wise this is admittedly a great gain, but let us look at what else has been happening during the past two years. Continuing with the Maine General Hospital as an example, income from investments and the Community Chest has not increased, it has remained approximately the same, but following the inflationary trend that has taken place nationally since the commencement of the Korean hostilities, the 1948 patient day cost of \$12.72 had risen to \$15.91 by the end of 1950. This cost is still \$8.91 higher than the optimum \$7.00 rate which may be produced from the new appropriation as compared with \$8.74 in 1948. After again applying all other available income, the loss per patient day of indigent patient care remains at \$5.09 or 36 cents more than the \$4.73 of 1948. We have held the line but have gained nothing.

So we face the immediate future with the still unsolved problem of how to provide hospital care for charity patients at less than cost. With no magic formula for the accomplishment of such a condition we must again strive to keep a balanced budget by the unfair method of transferring the load to the private paying patient until individual communities and the State as a whole find a way to fully compensate hospitals for the care of the indigent sick.

Prior to 1940 the tuberculin test was commonly used in case-finding surveys. Such surveys, however, yielded on the average only 2 cases of active tuberculosis for every 100 positive reactors to tuberculin. This low yield has brought the tuberculin test into

disrepute for use in primary surveys, but does not in the least minimize the importance of testing with tuberculin those persons whose roentgenograms show suspicious shadows.—*Am. Rev. Tuberc.*, C. Eugene Woodruff and W. Leonard Howard, February, 1951.

EDITORIAL

THE FALL CLINICAL SESSION

Lewiston, Maine — October 28, 29, 30

The fall clinical session of the Maine Medical Association will be held at Lewiston, Maine, Sunday, Monday and Tuesday, October 28, 29 and 30, 1951 under the auspices of the Androscoggin County Medical Society.

At this writing the program is somewhat tentative as to the names of speakers and subjects but a general idea of its calibre is evident in the following outline and details will be published in the September issue of the Journal.

An outstanding authority on Cardio-Vascular disorders will be the speaker at the dinner meeting Sunday evening, October 28 at 7.00 P.M., at the Hotel DeWitt, which will officially open the session.

On Monday, October 29, all day sessions will be conducted at the Central Maine General Hospital. From 9.30 A.M. to 12.30 P.M. there will be a Symposium on Cardio-Vascular Diseases.

From 2.00 P.M. to 5.00 P.M. a Symposium on Gastro-Intestinal Cancer will feature nationally known speakers to be provided by the American Cancer Society. Dr. Charles Cameron of New York City, Medical and Surgical Director of the American Cancer Society, will be moderator for this symposium.

Dinner that evening will be at the Hotel DeWitt at 7.00 o'clock followed by a Round Table Panel Dis-

cussion concerning the diagnosis and treatment of various types of cancer. The panel for this discussion will be made up of speakers from the American Cancer Society and State of Maine physicians.

On Tuesday, October 30, from 9.00 A.M. to 12.00 noon there will be a Symposium on Cancer of the Lung, which will cover recent developments in the field of cancer research.

Registration for members will be at the Hotel DeWitt on Sunday from 4.00 P.M. to 7.00 P.M., and at the Central Maine General Hospital on Monday, 8.00 A.M. to 5.00 P.M., and Tuesday, 8.00 A.M. to 12.00 noon.

The program committee expects to invite Specialty groups to prepare and present programs of interest to members of their respective sections.

The Woman's Auxiliary to the Androscoggin County Society have been asked to prepare a program of interest to the wives of members attending the session.

Why not make this notation on your calendar right now.

Fall Clinical Session, Lewiston, October 28, 29, 30
Make reservations

Look for detailed program in September Journal.

Herbert E. Locke, Counsel Re: Malpractice Insurance

To the Members of Maine Medical Association:

In view of experience the past few years, I earnestly advise:

First. *Malpractice insurance.* Most of you carry it. Some do not. All should. Patients are more suit conscious than 20 and 30 years ago. The need for such protection is increasingly greater.

Second. *Adequate insurance.* The dollar is depreciated. Larger verdicts in terms of the dollar are rendered these days. For your automobile liability insurance you would not carry 5000/10 these days as

you did years ago. Same as to your malpractice insurance. It should be with substantial coverage. The cost of the increased coverage is relatively slight.

Third. *Broad coverage.* Don't make exclusions in your application for your insurance, to save a few dollars. To illustrate by a recent case: the doctor didn't do much major surgery so he excluded it when purchasing his insurance; but he assisted in some major surgery from which a claim arose; so strictly he is not covered for that incident. Base your insurance on all of the practice you may do, not just merely what you usually do.

NECROLOGY

Calvin Franklin Jackson, M. D.
1899 - 1951

Calvin Franklin Jackson, M. D., born April 23, 1899—died May 12, 1951, at War, McDowell County, West Virginia, of coronary thrombosis.

Dr. Jackson was a veteran of World War I, Medical Corps. He was discharged as a first sergeant. He was graduated from Toledo University in 1923 and received his medical degree from Ohio State University Medical School in 1927. He interned at Toledo Hospital in 1928. General practice, Bradner, Ohio, 1929-1937. He did post graduate work in Obstetrics and Gynecology at the University of Pennsylvania in 1936-1937 and took a post graduate course in Gynecological surgery in Austria-Hungary in 1937, following which he

practiced in War, West Virginia, until 1946, when he came to Maine, especially for his son's health. He returned to practice in West Virginia in 1951.

He was a member of the Cumberland County Medical Society, Maine Medical Association and Portland Medical Club. He was also a member of Phi Chi Medical Fraternity and Sigma Beta Phi Social Fraternity of Toledo University.

Survivors are his wife, L. Gertrude Shannon Jackson; one son, John Edward, age 14, both of Portland; his parents, Mr. and Mrs. John F. Jackson; a sister, Mrs. J. Samuel Johnson, and brother, Warren W. Jackson, all of Fort Wayne, Indiana.

HOSPITAL STAFF MEETINGS
Open to the Profession

CITY	HOSPITAL	DATE
Augusta	Augusta General Hospital	1st Wednesday
Bangor	Eastern Maine General	2nd Tuesday
Bath	Bath Memorial Hospital	1st Tuesday
Belfast	Waldo County	2nd Friday
Biddeford	Webber Hospital Notre Dame Hospital	2nd Thursday 2nd Monday
Boothbay Harbor	St. Andrew's Hospital	4th Tuesday
Caribou	Cary Memorial	1st Wednesday
Damariscotta	Miles Memorial	2nd Thursday
Farmington	Franklin County Memorial	2nd Monday
Greenville	Charles Dean Hospital	2nd Wednesday
Hartland	Scott Webb Memorial Hospital	1st Wednesday
Lewiston	Central Maine General St. Mary's General	2nd Thursday 2nd Monday
Portland	Maine Eye and Ear Infirmary Maine General Mercy	1st Tuesday 2nd Friday 3rd Thursday
Presque Isle	Presque Isle General	1st and 3rd Tuesdays
Rockland	Knox County General	1st Monday
Rumford	Rumford Community	4th Wednesday
Sanford	Goodall Memorial	2nd Monday
Waterville	Sisters Thayer	2nd Tuesday Every Thursday

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, Harry D. McNeil, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

NEWS AND NOTES

A Little About Some of Your Colleagues

We asked for news items about doctors and naturally our first ones are from Piscataquis (100%) County.

One written by Dr. Norman H. Nickerson (Nick to you), "Early in June, 1950, Dr. Robert C. MacDuffee turned in his resignation to the Army and planned to settle in Monson. While the resignation was going through channels, the Korean war broke out and he was shipped to Korea. His family decided to move to Monson and await his return there. Recently the MacDuffees purchased the former home of Dr. Oscar R. Emerson, who practiced for a number of years in Monson around the turn of the century.

"Dr. MacDuffee, a graduate of the University of Chicago Medical School in 1946, received his professional training under the ASTP program. He served a year's rotating internship at the Central Maine General Hospital and then reported for active duty with the Army again. He was stationed at Walter Reed General Hospital for three years and was serving there when he received his overseas orders. In November of this last year he was injured in Korea and was evacuated to Japan. The first part of July he was released from the hospital and returned to active duty. He volunteered to serve in Korea again with the First Cavalry Division. His latest address—Major Robert C. MacDuffee, O-57032, 15th Med. Bn., APO 201, c/o Postmaster, San Francisco, California."

And from Piscataquis, too, Dr. F. J. Pritham sends us the following news about his son: "Howard C. Pritham, who practiced in Greenville after his return from Europe and War II and who left in December, 1949, to resume practice in Panama following his airplane accident on January 4, 1949, in which he lost one foot, is summering here at the Upper Wilson Pond. He expects to return to Gatun, Canal Zone, where he helps man a dispensary, the latter part of August. His wife and two sons accompany him."

He concludes with a regretful backward glance and a slight sneer for the prissy present: "Sorry, gents, but I have no late episodes to relate. The interesting part of life, medical, all stopped when we ceased to be a frontier. Good roads into all the surrounding areas do away with any fun in traveling and besides the injured or sick men are promptly brought out of the camps to the hospitals. It's just the same here as with you, one can mow the grass, hoe the garden and sit by while the Mrs. attends the Shrine."

We (that's those executive secretaries who had that bitter golf battle at Poland Springs) had the pleasure of meeting Dr. Fichtner at a meeting of the staff of the Franklin County Memorial Hospital last month. Dr. Fichtner was a guest and the president of the staff promptly put him at ease by expressing the hope that "he wouldn't be a guest too long."

Dr. Fichtner says: "I was born in Hartford, Connecticut, December 10, 1920, and lived in Connecticut, with the exception of the time spent in medical school, until I came to Maine this year. My practice in Rangeley began on July 1, 1951. I was married to Lilly Germaine Simon on August 14,

SEARLE
RESEARCH
CREATED



"Smoothage"

METAMUCIL® —the refined bulk or "smoothage" principle now recognized as a preferred treatment for constipation—originated from Searle Research.

METAMUCIL is of plant origin—it adds necessary natural bulk to the food residue

is free of all forms of irritating substances

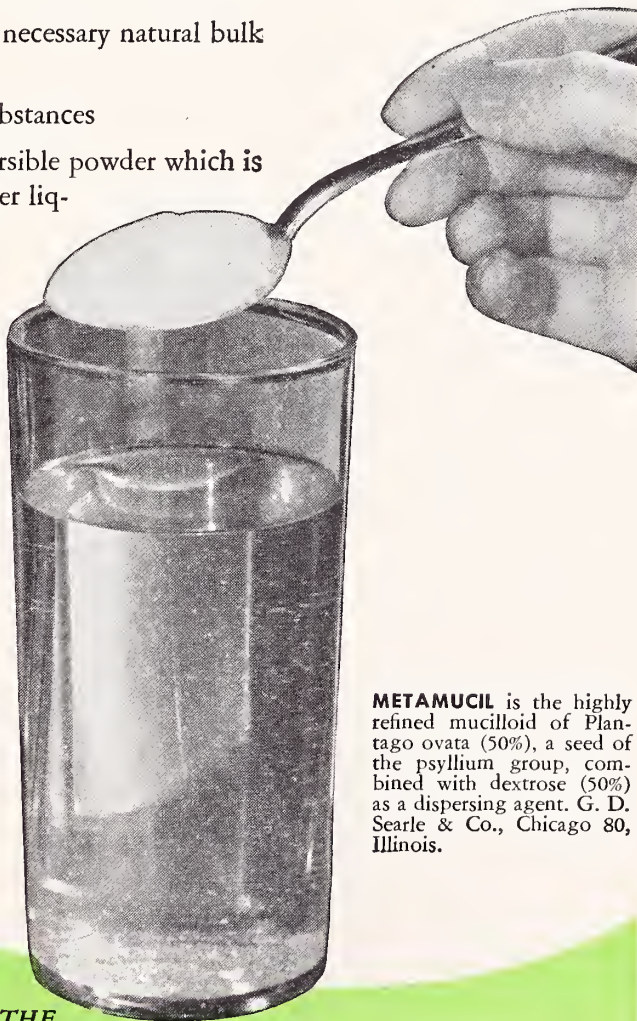
is prepared only in an easily dispersible powder which is taken with a glass of water or other liquids—one of the prime requisites to successful bowel management.

is economical—one teaspoonful one to three times a day in a glass of liquid is the indicated daily dose

enables the physician to use the "smoothage" principle of restoring normal bowel function

provides a bland water-retaining demulcent mass which mixes intimately with food and does not interfere with the digestion or the absorption of oil soluble vitamins.

**METAMUCIL IS A
PROFESSIONAL PRODUCT.**



METAMUCIL is the highly refined mucilloid of *Plantago ovata* (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent. G. D. Searle & Co., Chicago 80, Illinois.

SEARLE

RESEARCH IN THE
SERVICE OF MEDICINE

News and Notes—Continued from page 274

1942, in Simsbury, Connecticut, and we have one child, Susanne, now three years old."

Following is Dr. Fichtner's educational background: Graduate of the Loomis Institute, 1939. Graduate, B. S., Trinity College, Hartford, Conn., 1943. Graduate, M. D., Long Island College of Medicine, Brooklyn, N. Y., 1946. Rotating Internship, 15 months, Hartford Hospital, Hartford, Conn. General Residency, 12 months, McCook Memorial Hospital, Hartford, Conn. First Lt., Medical Corps, U. S. Army, 1948-49. Captain, Medical Corps, U. S. Army, 1949-51. Licensed in Maine, 1950—Connecticut, 1947—New York, 1949.

Some of you doctors will recall Dr. Fred L. Varney who used to practice medicine in Monson. His present address is Box 142, Sandwich, Mass.

Dr. Varney is apparently badly crippled by neuritis, but his letter speaks cheerfully of picking "many quarts of blueberries this summer and selling them." "But," he says, "of course a good picker can pick six times as fast as I."

Dr. Robert Collier Page, Chairman of the National Doctors' Committee for Improved Federal Medical Services, has announced the appointment of Dr. Adrian H. Scolten of Portland as Chairman for the committee activities in Maine. The National Doctors' Committee for Improved Federal Medical Services is an affiliate of the Citizens' Committee for the Hoover Report.

U. S. Vitamin Corp. Buys Arlington Chemical Co. Combined Plus New Facilities Will Enlarge Service to Professions

U. S. Vitamin Corporation, New York, N. Y., has announced, through its President, H. B. Burns, the purchase of time-honored Arlington Chemical Company of Yonkers, N. Y. The 72,000 square foot plant, together with a large new building to be constructed thereon, will be utilized to enlarge the services of both U. S. Vitamin and Arlington to the medical and pharmaceutical professions. Main offices of U. S. Vitamin will continue at 250 E. 43rd St., New York 17, N. Y.

American College of Chest Physicians

The 17th Annual Meeting of the American College of Chest Physicians was held at the Ambassador Hotel, Atlantic City, New Jersey, June 7 through 10, with a registration of 1,040. On Saturday, June 9, at the administrative session the following officers were elected for the coming year:

Dr. Chevalier L. Jackson, Philadelphia, Pennsylvania, President.

Dr. Andrew L. Banyai, Milwaukee, Wisconsin, President-Elect.

Dr. Alvis E. Greer, Houston, Texas, First Vice-President.

Dr. William A. Hudson, Detroit, Michigan, Second Vice-President.

Dr. Minas Joannides, Chicago, Illinois, Treasurer.

Dr. Charles K. Petter, Waukegan, Illinois, Assistant Treasurer.

At the Convocation ceremony held on Saturday, June 9, 109 physicians received their Fellowship Certificates. Oral and written examinations for Fellowship in the College were given to 58 physicians on Thursday, June 7.

Dr. Francis J. Welch of Portland serves as Governor of the College for the State of Maine.

Dr. Edward A. Greco of Portland serves as Regent of the College for District No. 1.

Medical Motion Pictures

A revised catalog of motion pictures available through the Committee on Medical Motion Pictures is now available. Copies will be sent to the secretary of each county and state medical society. This catalog lists sixty-two 16 mm. films, most of which are at the professional level. Fourteen of these films are suitable for showing to lay groups. Eight new films have been added. Copies are available upon request from: Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

The Rhode Island Medical Society Fiske Fund Prize Dissertation

The Trustees of the Caleb Fiske Fund of the Rhode Island Medical Society announce the following subject for the prize dissertation of 1951:

"THE PRESENT STATUS OF ADRENO-CORTICAL HORMONE
THERAPY—ITS USES AND LIMITATIONS"

For the best dissertation a prize of \$200 is offered. Dissertations must be submitted by December 2, 1951, with a motto thereon, and with it a sealed envelope bearing the same motto inscribed on the outside, with the name and address of the author within. The successful author will also agree to read his paper before the Rhode Island Medical Society at its Annual Meeting in May, 1952. Copy must be typewritten, double spaced and should not exceed 10,000 words. For further information write The Rhode Island Medical Society, 106 Francis Street, Providence 3, Rhode Island.

Arthritis and Rheumatism Foundation

The Arthritis and Rheumatism Foundation is offering research fellowships in the basic sciences related to arthritis. Fellowships will be granted at both the predoctoral and postdoctoral levels. The predoctoral fellowships will range between \$1,500 and \$3,000 per annum, and the postdoctoral from \$3,000 to \$6,000. The deadline for these applications is November 15, 1951. Application forms may be obtained by writing the Medical Director, Arthritis and Rheumatism Foundation, 535 Fifth Avenue, New York 17, N. Y.

**Department of Health and Welfare
Division of Maternal and Child Health
(Including Services for Crippled Children)**

Clinic Schedule—1951

ORTHOPEDIC CLINICS

Portland — Maine General Hospital, 9.00-11.00 a. m.: Jan. Feb. 12, Mar. 12, April 9, May 14, June 11, July 9, Aug. , Sept. 10, Oct. 8, Nov. 5, Dec. 10.

Lewiston — Central Maine General Hospital, 9.00-11.00 m.: Jan. 19, Feb. 16, Mar. 16, April 20, May 18, June 15, ly 20, Aug. 17, Sept. 21, Oct. 19, Nov. 16, Dec. 21.

Rumford — Community Hospital, 1.30-3.00 p. m.: Mar. , June 20, Sept. 19, Dec. 19.

Waterville — Thayer Hospital, 1.30-3.00 p. m.: Feb. 15, pril 26, June 28, Aug. 23, Oct. 25, Dec. 27.

Rockland — Knox County Hospital, 1.30-3.00 p. m.: Feb. May 17, Aug. 16, Nov. 15.

Machias — Normal School, 1.30-3.00 p. m.: Feb. 14, Apr. , June 13, Aug. 8, Oct. 10, Dec. 12.

Presque Isle — Northern Maine Sanatorium, 9.00-11.00 m.—1.00-3.00 p. m.: Jan. 9, Mar. 7, May 8, July 11, Sept. t, Nov. 7.

Houlton — Aroostook General Hospital, 9.00-11.00 a. m.: lar. 6, July 10, Nov. 6.

Fort Kent — Normal School, 10.00-1.00 p. m.: Jan. 10, lay 9, Sept. 12.

Bangor — Eastern Maine General Hospital, 1.30-3.00 p. m.: an. 25, Mar. 29, May 24, July 26, Sept. 27, Nov. 29.

CARDIAC CLINICS

Portland — Maine General Hospital, 9.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

Bangor — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 7, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

HARD-OF-HEARING CLINICS

Waterville — Thayer Hospital, 1.30-3.30 p. m.: Feb. 21, une 6, Sept. 5, Dec. 5.

PEDIATRIC CLINICS

Bangor — Eastern Maine General Hospital, 1.30 p. m.: an. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

Waterville — Thayer Hospital, 1.30 p. m.: Jan. 2, Feb. 6, Mar. 6, April 3, May 1, June 5, July 3, Aug. 7, Sept. 4, Oct. , Nov. 6, Dec. 4.

Presque Isle — Northern Maine Sanatorium, 1.30 p. m.: an. 24, Mar. 28, May 23, July 25, Sept. 26, Nov. 28.

By appointment only.

**Neurosurgical and Convulsive Clinics
at the
Maine General Hospital**

Neurological and Neurosurgical Clinics, both therapeutic and diagnostic, are held at the Maine General Hospital, Portland, on the 1st and 3rd Thursday of each month at 2.00 P. M. The convulsive clinic, designated for the diagnosis and treatment of epilepsy and other convulsive disorders, is held at the same time on the 2nd Thursday of each month.

Mental Health Clinic Schedule

The Division of Mental Health offers psychiatric clinic service to children and adults in the following cities:

Portland — Health and Welfare Department, 178 Middle Street. Every Tuesday.

Lewiston — Out-Patient Department, Central Maine General Hospital. Every Monday.

Augusta — Bureau of Health, Division of Mental Health. By Appointment.

Waterville — Out-Patient Department, Thayer Hospital. 2nd Thursday, 4th Wednesday.

Bangor — Out-Patient Department, Eastern Maine General Hospital. 1st Wednesday afternoon.

Valentine School, Union Street. 1st Thursday.

A traveling clinic visits the following towns and cities at irregular intervals: Brunswick, Caribou, Farmington, Fort Kent, Houlton, Lincoln, Machias, Old Town, Presque Isle, Rockland, Rumford and South Paris. All clinics are staffed by a psychiatrist and psychologist.

Referrals may be made by private physicians, parents, families, social agencies, school superintendents, Department of Education, all divisions within the Department of Health and Welfare. Application blanks may be obtained from the main office of the Division of Mental Health — State House, Augusta.

Patients are seen by appointment only. Each child must be accompanied by a parent or guardian. Applications should be sent to the Director, Division of Mental Health, Department of Health and Welfare, State House, Augusta, where all appointments are made.

Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Armand L. Guite, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, 2nd and 4th Thursdays, 10.00-11.00 A. M., Arthur H. McQuillan, M. D., Director.

COMING MEETINGS

New Hampshire—Vermont

A combined meeting of the New Hampshire and Vermont State Medical Societies will be held September 30, October 1 and 2, 1951, at the Equinox House, Manchester, Vermont.

DEERING G. SMITH, M. D., *Secretary*,
New Hampshire Medical Society, Nashua, N. H.
JAMES P. HAMMOND, M. D., *Secretary*,
Vermont State Medical Society, Bennington, Vt.

The New Brunswick Medical Society

The annual meeting of the New Brunswick Medical Society will be held at St. Andrews, N. B., September 5, 6, 7 and 8, 1951.

F. L. WHITEHEAD, M. D., *Secretary*,
East Riverside, N. B.

Twenty-sixth Clinical Congress Connecticut State Medical Society and Yale University School of Medicine

The twenty-sixth Clinical Congress of the Connecticut State Medical Society and Yale University School of Medicine will be held at New Haven, September 11, 12 and 13, 1951, in the Yale Law School Auditorium, Grove Street, and New Haven Hospital and the School of Medicine, Cedar Street.

A dinner for the President of the American Medical Association, Dr. John W. Cline, San Francisco, will be held at the New Haven Lawn Club, September 11th, at 7.00 o'clock. Dr. Cline will be the after-dinner speaker.

Clinical Assembly Massachusetts Academy of General Practice

A Clinical Assembly of the Massachusetts Academy of General Practice will be held Wednesday, September 26, 1951, at Beth Israel Hospital, Boston. Luncheon, afternoon and evening program at Hotel Shelton.

Clinics will be conducted by Dr. Jacob Fine and associates and Dr. Herrman L. Blumgart and associates. Speakers include Dr. Tom D. Spies, Birmingham, Alabama; Dr. William P. Herbst, Washington, D. C.; and Dr. J. P. Sanders, Shreveport, Louisiana.

The American Congress of Physical Medicine

The American Congress of Physical Medicine will hold its twenty-ninth annual scientific and clinical session September 4,

5, 6, 7 and 8, 1951, inclusive, at the Shirley-Savoy Hotel, Denver, Colorado. All sessions will be open to physicians and other professional personnel. In addition to the scientific session, the annual instruction seminars will be held September 4, 5, 6 and 7. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

American Trudeau Society

The annual meeting of the Eastern Section of the American Trudeau Society will be held Friday and Saturday, November 2nd and 3rd, at Hartford, Conn. Headquarters for the meeting will be at the Hotel Bond in that city. Members of the Society who wish to present papers are urged to communicate promptly with the Chairman of the Program Committee, Dr. Kirby Howlett, Laurel Heights Sanatorium, Shelton, Conn.

Fifth Congress Pan-Pacific Surgical Association

Doctor F. J. Pinkerton, President of the Pan-Pacific Surgical Association, reports that plans are well under way for the Association's Fifth Congress and advises doctors to make arrangements as soon as possible to attend this meeting.

Dates for the Honolulu congress are November 7-19, 1951. The scientific program, which will begin on November 12th and continue through November 16th, will include sessions in all divisions of surgery, with papers presented by topflight surgeons from the Pacific area countries. In addition to attending an outstanding surgical conference, doctors may enjoy a delightful vacation in Hawaii and are urged to bring their families with them, with the assurance of luxurious accommodations.

The Pan-Pacific Surgical Association has been officially appointed as travel agent for those attending the congress, and it is therefore important that all hotel and travel reservations be made through the Association office, Suite 7, Young Hotel Building, Honolulu, Hawaii.



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, September, 1951

No. 9

PRESIDENT'S ADDRESS*

FOSTER C. SMALL, M. D., Belfast, Maine**

Mr. Chairman, members of the Maine Medical Association and Guests. We are nearing the end of the 97th Annual Meeting of the Maine Medical Association. We, in the midst of this meeting, are faced on all sides by those who would ruin such an organization as this. Let us for a few moments reflect, in our memories, to ninety-seven years ago, when Maine was sparsely settled, when the towns were more or less remote and when the lines of communication were bad. In other words, let us go back to the horse-and-buggy-days.

When we think of the obstacles of today, we must also think and reflect in our memories about the obstacles of those days gone by.

What were the characteristics of those men of the early days who organized our Maine Medical Association? If you will reflect again in your memories back ninety-seven years, you will go back to approximately seven years before the outbreak of the civil war. Those men were God-fearing men. They were men who had faith in themselves, who were willing to experience any sort of punishment in the way of work, that they might accomplish an objective, and that objective was an organization such as we see here today. In other words, they had a vision throughout all of these years.

There has persisted in the minds of the Maine medical profession as a whole that conservative, determined opinion relative to what is honest and right, and as a result of that, we have participated in the general trend of advancement in all phases of medicine and surgery throughout this great nation of ours today.

Only a few years ago, approximately two and a half years ago, we were interfered with by those who would tear down what we had built and made secure up until that period. Thank God we have been able, through the coöperation of the allied professions, to check that thought in the minds of those who had it in Washington, and I am sad to state that perhaps we are somewhat contaminated with it in our own ranks.

Don't be deceived, however, and be lulled to sleep, because at the present moment, even though we are apparently successful, it does not mean that they have been subdued by any means.

Let us stop for a moment and see what would be your answer to this question, if it were asked of you during World War II. Here is the question:

Do you think that Great Britain would turn or become socialistic? Do you think that the conservative nation of Great Britain, with the sovereignty of a King, would become socialistic?

I believe you would have said "No" to that question.

* Presented at the 97th Annual Session of the Maine Medical Association, June, 1951.

** President, Maine Medical Association, 1950-1951.

Yet, at the present moment, it has been engulfed in that socialistic idea. And it can creep into our institutions; it can creep into our political life of our State. But again, let us begin as individuals to protect our own individual professions, and then, in addition, use our influence in the community in which we live so that we may subdue any such an act of injustice before it really gets started.

In the State of Maine, we are proud of our institutions. We have many of them. We have excellent hospitals. We have excellent colleges. And, we have a number of wonderful boys and girls. You have heard it said and repeated time and again that our boys and girls of our State must have an opportunity.

But, I say to you in all seriousness: What steps have been taken to provide that opportunity for our boys and girls, within our own State?

These are questions that are not political. They pertain to us, as individuals in our great State of Maine.

We have a very good institution at Colby College. Up to a short while ago, the buildings were, perhaps, old and obsolete. But there was a gentleman, Dr. Johnson by name, who had a vision, and what was that vision? That there would be on Mayflower Hill an up-to-date, modern college, where our boys and girls could go to school. That is an advancement, and the Faculty of Colby College, with those who cooperated with them, made that possible which is a monument.

Well, now, the point that I wish to bring to you today is this. They had something, but they were not satisfied with it. Those men in the days gone by, relative to our institutions of this type, were not satisfied, so they built for the future. So that we have our present organization, Colby College, built for the future, and a monument stands, erected on Mayflower Hill, to Dr. Johnson, one of the educators of our State, of which we are extremely proud.

But, what happened? Where did the money come from? Millions of dollars built that institution!

And we can go to Bowdoin College, and we can go to Bates College, and we can go to our State University of Maine, and we have erected beautiful institutions that cost millions of dollars. How is it done? Not by money sent from Washington, D. C., but by the individual parties concerned for the welfare of the boys and girls in our own State. There is where we must begin our work.

I am going to tell you a coincidence, not for any special self-praise, but to give you an illustration of what actually can be done in a small community, with not 100 per cent coöperation, but we will say with 90 per cent coöperation, in my city of less than 6,000 people. About twenty-five years ago, by united effort, we raised \$110,000 for a factory, and they all have

their money back. That factory has moved out, and with the same coöperation in the same community, two years ago we raised \$71,600 in cold cash for a new shoe factory, and the one that we got in, in the first place, had moved out, and the citizens of Belfast were willing and gave an additional sum of \$25,000 to locate another concern in the old factory.

It is a stock proposition, I might say in passing, without any further expense to us; they are building on it this very moment a 108-foot extension, 40 feet wide, 4 stories high which will cost as much as the original building.

I am giving you that just as an example of what can be done in a small community, with united effort.

Now, you probably are thinking, in your mind: What is he driving at? I will tell you what I am driving at. I am driving at and for a medical school in this State of Maine. There is only one way we can get that medical school, and that is for the Maine Medical Association to sponsor the proposition, as we have done thus far. We have been successful in getting an enabling act enacted and passed by the last Legislature; so that we can get a medical school at the University of Maine. I believe in all sincerity that we have the facilities, the men and the capacity to bring that to pass. But, again, it requires united effort on the part of all of us. I am going to say to you that I hope, today, at this Annual Meeting of the Delegates, that you will appropriate at least \$300.00 so that a survey relative to what is needed may be made. The President and the Trustees were very receptive.

I do not want to omit stating the fact that Dr. Herlihy did a tremendous amount of work, together with his Committee, and Dr. Drake and his Interim Committee consisting of Dr. Clyde Swett and others have done much; but, we must not stop here. I believe that the Maine Medical Association, with 763 members, should contribute liberally for a foundation for a fund, and I might say that after the survey is made and after the physical property is studied relative to this institution as to what they have and what they do not have, then and then alone can we get a figure on what the actual cost may be.

As I understand it, you must have certain requirements for teaching, in order to have a first-class medical school. We know that we want such a school, a first-class school, if we have any at all.

I talked to the ladies of the auxiliary this afternoon. I gave a message to them and know that they will be willing to coöperate. And, as soon as the Association lays the foundation for a fund, preferably at the University of Maine, we can then proceed with this program for funds.

In a period of two or three years, this Association should contribute freely and liberally, at least

50,000; that amount is not big, Gentlemen, and it is not much of a burden.

Do we owe anything to the privilege of practicing our profession? Do we owe anything to those men who sacrificed in the days in the beginning of this generation, those men who went through the hardships and those men who have worked and labored for medicine, many of them losing their lives in experimentations?

You and I are justly proud of the progress in the various phases and so forth in the Departments of Medicine and Surgery. We ought to be!

But, do we not owe some debt to somebody?

I am wondering how far we may be wandering from the original pattern, which I tried to draw for you, where men were willing to sacrifice, even their all, and death itself, if necessary, that this profession might live and grow?

Time will write the results of what they did, by our actions, too.

And I say that that is a small part that we have to play, very small indeed. For without work, it availeth nothing. It cannot be done. But, the truth and the truth alone will set us free. It will set us free from the entanglements of socialism, and it will set us free to labor in the profession which we have followed. It will set us free to go out into the world and do that which is constructive, for the betterment of all mankind.

Let us not think wholly of the remunerative angle of our profession. There is a moral obligation involved, not only to those who have labored and founded this institution, but there is a moral obligation to our State, and there is a moral obligation to our government and there is a moral obligation in the leadership of the world throughout the world. It is a job for you and for me.

Let us not forsake our responsibilities, and, irrespective of what our religion may be, you will agree with me that we are doing our work the best that we know how, and we are following the best we can in the footsteps of our Master.

As a result, and with those that I have put before you, with the united effort of the profession, the dental profession, the industrialists, the Maine Medical Association as a foundation, we can finally reach to the people of this entire State and I believe that we can accumulate sufficient funds.

If the State of Vermont, where I visited last week, can have their own school, let us fasten our thoughts on our own.

There is a possibility, perhaps, of forming a regional school with other universities such as University of Vermont and Dartmouth College.

There are many possibilities, and they are very anxious to do what they can, because we need a school in Maine.

The State of Vermont, at its last Legislature, appropriated \$365,000 annually; yes, Vermont, with one-third of the population and approximately one-third of the wealth of this State of Maine, can maintain a medical school, and they have appropriated annually \$365,000 for it.

This is a program, Ladies and Gentlemen, that means much to the State of Maine. I have talked about it from one end of this State to the other, in the medical circles, and they have been exceptionally receptive.

I realize that many of you probably do not think it advisable for a medical school to be located here, but whatever may be our opinions, whether it is compulsory health insurance, whether it is nursing problems, whether it is the medical school, or whatever it may be, let us join together with what the majority want and then work in unity for a goal which I know will be successful.

I have enjoyed immensely the work this year. All of the societies have coöperated, and all of the committees have functioned well. No one has refused to do anything. I am proud, as I know you are, of the Maine Medical Association and of its objectives for the advancement of the profession, and the aid to public welfare that it has always been in favor of and always will be.

In closing, I realize that you have been out-of-doors enjoying the good sunlight, and you have been enjoying all of the things that are essential for a good time; but, it is well for us today to pause a few moments in recognition of those boys that are along the fighting front today, those boys of our own profession who are giving their very all that you and I may have the privilege of living peacefully and pursuing our professions.

May God grant that the day will come when we will not be subjected to any degree of subjugation.

Thank you very much!

We may yet, through the wonderful persistence of . . . research workers, reach the situation described in Samuel Butler's *Erewhon*, a community in which ill health was regarded as a crime and a man accused

of "pulmonary consumption" was convicted and sentenced to imprisonment, at hard labor, for the rest of his miserable existence.—Claude M. Fuess, Ph.D., *New England J. Med.*, September 21, 1950.

THE COLLEGE AND THE MEDICAL SCHOOL*

ERNEST C. MARRINER, Dean of the Faculty, Colby College

One of the most serious problems faced by the modern college is preparation of candidates for admission to the medical schools. Every year the college is confronted with a small, but significant group of disappointed, frustrated and sometimes bitter young men. Admission into medical school has become so highly competitive that, in many a college the number of rejected candidates annually exceeds the number of those admitted.

Why is this true? Of the 77 medical schools in the United States and Canada, 72 are fully accredited four-year schools. Eighteen states have no medical schools. With the exception of Vermont, no New England state has a medical school which is even partially the recipient of public support. On the other hand, in the Middle West and the Far West, most of the medical schools are public institutions, and to a large degree the same is true in the South. By state laws these public medical schools must give preference to applicants from within the state. As a result, New England applicants actually do not have 72 schools to which they may apply, but actually fewer than 40 schools.

Twenty medical schools — about 28% of all the accredited institutions—are located in the three states of New York, Pennsylvania, Maryland, and the District of Columbia.

Each year, about fifty thousand applications are made for less than six thousand places in the entering class of all our medical schools. Of course many of these are duplicate applications; the same individual applies to several schools. The number of different individuals who apply is about fifteen thousand, of whom six thousand gain admission to some medical school. It is thus clear that of every five applicants only two are admitted and three are rejected.

The problem of the college is to advise and guide those sixty per cent of medical school rejections. Many of them are not hopelessly low students; large numbers of them have strong personal qualities. All of them deserve a fitting place in American society.

Through its guidance procedures, especially through its faculty committee on preparation for medicine, the college seeks to help doubtful cases to plan and prepare for an alternative vocation. This task is not easy, because boys who want to be physicians cling tenaciously to their plan, sometimes after two successive years of rejections. Yet, if complete frustration and harmful social cynicism are to be

avoided, these rejected men must be helped to find a vocation in which their efforts will be productive and satisfying.

In order to predict for its applicants their chances of admission into medical school, the college must have some conception of how the schools select their classes. In this respect the medical schools have shown eagerness to cooperate with the colleges. During the past year numerous conferences have been held, all designed to bring better understanding between the medical schools and the colleges which prepare the candidates.

Everyone knows that the medical schools want men with high college grades. Just as the colleges have plenty of evidence to show that the best single criterion for success in college is success in preparatory school, so the medical schools have learned the predictive value of success in college. Able to fill all places with candidates whose marks in college are high, the medical schools quite naturally reject the persons with low or even average grades.

In recent years the medical schools, like the colleges, have sought some single, objective device for measuring all candidates. The Medical Admission Test, especially the new test now operated by Educational Testing Service, is showing high reliability — that is, high predictive value as to success in medical school. Although no school admits or rejects on the basis of the test alone, all schools use it as an important factor.

All over the nation today we find much interest in what is called general education, the all-around education of the person as a human being and a citizen, not merely as a professional worker. The medical schools are now insisting on greater breadth of education for those who apply for admission, and they urge that undue emphasis shall not be placed upon the sciences. What they expect in candidates is expressed as follows in the official statement of the Association of American Medical Colleges:

"Inasmuch as the true success of a physician, and the public as well as professional repute in which he is held, are determined by his character, personality, industry, resourcefulness and judgment, quite as much as by his technical skill and knowledge, the selection should be based on these qualities. The subject matter of his preparation is, within certain limits, relatively unimportant. The particular field of concentration is immaterial. What is wanted for medical studies are students who, together with other qualities, have first class minds."

* Address before the Maine Medical Association at Poland Spring, June 17, 1951.

Now this is all to the good, and every liberal arts college will applaud the statement and the educational philosophy behind it. But the difficulty lies in the fact that the administrative officers of the medical schools have apparently not yet won over their teaching faculties to this philosophy. Has anyone ever heard of a young man getting into trouble in a medical school classroom because he has not studied history or art or philosophy? On the contrary, many a student has been asked why he didn't take more biology or more chemistry. Only a year ago one young man in the first year of medical school quoted a professor as saying to him, "You mean to say that you came here without a course in physical chemistry. What are you thinking of?" Yet no medical school in the country requires physical chemistry for admission.

On the other hand, the medical schools can provide plenty of data to show that men who fail in medical school do so, not because they know too little biology or chemistry or physics, but because they do not know how to attack, organize, and resolve the problems and competently use the materials presented to them. Repeatedly the schools tell us that the qualities which count do not include accumulated stores of knowledge, but are rather very simple qualities of personal living. Among them these four stand out: (1) a wise choice of activities and budgeting of time; (2) willingness to do more than the assignment, to go "beyond the call of duty"; (3) persistence of effort; (4) willingness to handle patiently numerous and irksome details, to show "interest in the trees for the sake of the forest."

The college cannot expect uniformity in the requirements of the different medical schools. It can, however, work with those schools to obtain certain fundamental agreements. One of those concerns the requirements in foreign languages. The requirement in French or German, with the latter often preferred, is a hang-over from the decision of 1893 — nearly half a century ago — when it was decided that the candidate for medical school should have "a knowledge at least sufficient to read the scientific

papers constantly appearing in French and German." To many persons, the requirement now seems absurd for two reasons; first, because very few students with two years of language study in college can read the scientific papers, and second, they have no need to do so because translations and abstracts into English are so quickly made and are so easily available.

Many of us believe that at least an acquaintance with some foreign tongue is essential for the educated man or woman. The reasons for a foreign language requirement are therefore cultural and in the interests of general education. On that basis there is little to say on behalf of one foreign language over another. In fact if we want to be practical about it, perhaps we all ought to study Russian. Furthermore to neglect completely the classical languages is open to serious question. Whether some knowledge of Latin might not still have closer relation to *materia medica* than German has to papers which one can quickly get in English translation is at least debatable.

As a result of the many conferences recently held between college and medical school staffs, most colleges have now abandoned a definitely labeled pre-medical major. Instead the student majors in any field of his choice. Although this is usually a science, it need not be so.

Many colleges have adopted, in place of individual letters of recommendation, the carefully prepared joint statement of a committee on medical preparation, and all of the colleges are improving their methods of advising and guiding the boys and girls who look forward to the study of medicine. Every institution is giving much time and thought to the perplexing problem of rejected candidates.

The colleges are determined to help the medical profession preserve the high standards so painfully won during the last half century. We are not trying to pressure the medical schools into taking all candidates. We merely seek the opportunity to work with the medical schools in a common task of education and guidance that will best protect society without forgetting the individual.

The first WHO Anti-Tuberculosis Centre is being established in Istanbul, Turkey, with generous financial assistance from the Turkish Health Ministry and the Anti-Tuberculosis League of Istanbul. This demonstration and training centre in tuberculosis control will be open to foreign students.

Three WHO teaching-training centres for tuberculosis control are to be opened in India this year, probably in New Delhi, Patna and Trivandrum, to train medical workers in the prevention, diagnosis, and treatment of tuberculosis.

✓ A CASE REPORT OF LUDWIG'S ANGINA WITH COMPLICATIONS

JAMES E. POULIN, M. D., Sisters' Hospital, Waterville, Maine

Ludwig's angina is a virulent, extensive, phlegmonous process arising from infections within the floor of the mouth and involving the region of the submaxillary gland. It is always a dangerous condition, and this case proved to be no exception.

The patient concerned was a sixty-four-year-old man who was brought to the hospital by ambulance during the night. The outstanding characteristics of this disease were manifested by the patient in that he showed severe involvement of the cervical cellular tissue and was in profound toxemia. Thus, upon first inspection it was very evident that this man was debilitated and acutely ill. He was dyspneic, swallowing was painful, and he was unable to talk. Consequently, no history could be obtained from him; but, upon questioning, his relatives revealed that he was an alcoholic of poor habits.

Any patient with this condition rapidly develops alarming symptoms which very often lead to serious consequences, because cellulitis of the floor of the mouth is a menace to life. In consideration of the patient's age, his weakened condition, and the dangerous nature of his illness, it was felt that he had very little chance of surviving such an ordeal. Although speech was impossible, it was easily recognizable that his chief complaint pertained to his tongue and the floor of his mouth. The tongue was pushed upward toward the roof of the mouth and the entire mucosa of the floor of the mouth showed marked edema. Pronounced dental caries existed which, in all probability, was the point of entry of the infection. The posterior pharynx could not be visualized, but the mucus therein was removed by means of suction. Externally, there existed the characteristic board-like swelling over the involved cervical tissues. The edema was such that these tissues pushed forward and formed an almost straight line from the tip of the chin to the suprasternal notch. No fluctuation was evident and a sublingual abscess was ruled out by aspiration of the tissues beneath the elevated tongue. The temperature and pulse were comparatively low. The blood count showed marked leukocytosis, as would be expected, while the remaining laboratory work was within normal limits.

In these cases respiratory difficulties arise because of the enormous swelling, the upward displacement of the tongue, and the edema of the entire neck and larynx. As would be expected, the patient was experiencing difficulty in respiration and it was obvious that he was being embarrassed both by the toxemia and by the edema of the anterior cervical tissues. The respirations were labored, and it was noted at the

time that some of the accessory muscles of respiration were being used. The suprasternal notch retracted with each respiration, which was indicative of tracheal interference. The examination of the lungs revealed no pneumonic process.

This patient's condition was extremely grave. He was given penicillin and streptomycin in adequate doses. He likewise received supportive treatment consisting of the administration of intravenous glucose and caffeine sodium benzoate at four-hour intervals to improve respirations; and an oxygen tent, as well as a tracheotomy set, was kept in readiness to aid the patient in breathing.

The patient's life was endangered, not only by the extensive toxemia of the infection itself, but also because of the pressure of the tissues upon the neighboring trachea. Eighteen hours after admission, the patient's condition had obviously not improved, and it was quite apparent that it had gone from bad to worse. Massive doses of antibiotics had been of no avail and his respirations had become more labored and cyanosis had become more marked.

It was now realized that the eminent danger was that of complete collapse of the trachea from the pressure of the surrounding tissues. Thus, the tracheotomy set was put into use without further delay. The patient was removed to the operating room so that this emergency procedure might be carried out. No pre-operative medication was given for fear that it might disturb the already hindered circulation. In the operating room, a classical tracheotomy was carried out under local anesthesia. The bleeding was amazingly scant throughout the operating procedure, but a considerable amount of tissue edema was encountered as well as serous discharge. Oxygen and suction were available and kept in readiness throughout this procedure. Immediately following the procedure, the patient manifested improvement in color, his respirations became less forceful, and it was very evident that his general condition had, at least temporarily, improved. Upon his return from the operating room, the usual postoperative regime following tracheotomy was carried out. This consisted mainly in keeping the room hot and moist, as well as frequent use of suction, which was carried out by special nurses. Intravenous feeding as well as antibiotic therapy were maintained for the next twenty-four hours. In spite of the improved respiration, it was certainly evident that the patient was a very sick man and that the acute inflammatory condition had not improved. His temperature rose to 104°, the dense, brawny swelling of the neck was still evident, and the

condition of the tongue had not improved, indicating that the inflammation in the floor of the mouth was in no way overcome. The pain was still causing the patient a great deal of suffering. Considering these facts, it was felt that surgical drainage of the submaxillary space would have to be carried out.

The patient was given the necessary supportive treatment consisting of intravenous glucose prior to the operation, as well as caffeine and coramine. He was again removed to the operating room. This time one-fourth grain of morphine sulfate and 1/150 grs. of atropine were given because it was felt that this would not interfere with his respirations as long as the tracheotomy tube was in place. After the preparation of the skin for surgery, the area was infiltrated with novocaine and an incision was now made parallel to the mandible. This incision extended down to the deep fascia to the tissue of the submaxillary gland. The patient, who was quite toxic, appeared to be relatively immune to pain and the novocaine infiltration worked remarkably well. The muscles of the neck were carefully spread as much as possible; in so doing, much edema was encountered and a profuse amount of sero-sanguinous liquid escaped. By means of blunt forceps, deeper exploration was carried out and a submaxillary space abscess was located. By spreading the blades of the forceps, pus escaped under pressure upon breaking into the submaxillary space. The pus was removed by means of suction and extensive amounts of edematous fluids were removed at the same time. A rubber tissue drain was now inserted into the wound and the upper portion of the wound was closed. Stab wounds were now made in the floor of the mouth on each side of the tongue to relieve the edema. The patient was removed from the operating room in what was considered to be a satisfactory condition.

The postoperative care in this case was the usual type of postoperative care which is given to tracheotomy cases. This consisted in changing the tracheotomy tube daily, together with humidification of the room and the administration of penicillin, which played a very vital role in the prevention of the development of pneumonia, a complication so frequently encountered following tracheotomy. A culture of the material obtained at surgery showed the streptococcus chain and the antibiotics were continued. For six

days following surgery, the patient's condition was serious and his convalescence was a stormy one; but by this time it became quite evident that the grave nature of the illness was over and the patient was destined to survive his ordeal. Examination of the pharynx showed that the edema that had existed at the base of the tongue had now entirely subsided and the patient was able to take liquid nourishment by mouth. Subsequently, it was felt safe to remove the tracheotomy tube. This was done after it was evident that respirations could be carried out from the air taken through the pharynx. During this period, the incision beneath the mandible drained profusely. The drain was removed on the tenth postoperative day and the wound was allowed to close in.

In reviewing this case, it is amazing that this individual survived the disease and extremely grave infection with which he was afflicted. It is all the more surprising when one takes into consideration the patient's debility and the fact that he was an alcoholic. The etiology of this fulminating infection was naturally never determined, but it was felt that it was secondary to an infected tooth. The causative organism was a streptococcus chain, as was previously mentioned. Undoubtedly the penicillin and streptomycin therapy played a great influence in the favorable termination of the infection.

This case was reported not because it was an unusual one, nor was it reported because the patient's recovery was so remarkable, for literature is filled with such cases but because it proves once again that modern chemotherapy alone is not sufficient to overcome severe infection where there is localization of pus. The incision not only evacuated the pus, but it also relieved a great deal of the tension that was exerting itself upon the surrounding tissues.

Mortality is high in these cases if treatment is not instituted early, various authors having placed it at about fifty per cent. The fact that most deaths are due to edema of the larynx emphasizes the necessity of carrying out a tracheotomy before the patient's condition becomes desperate. In this particular instance, the combined therapeutic effects of chemotherapy, surgical drainage, and a timely tracheotomy saved the patient from inevitable death and brought about an astounding recovery. ✓

The prevention of tuberculosis by minimizing public contact with infectious persons begins exactly like the recipe for rabbit stew. "First, catch your rabbit." Miniature chest filming is the process which has

recently made that first step economically possible on a broad scale.—*J. Michigan State M. Society*, Ben R. Van Zwalenburg, M. D., November, 1949.

BILATERAL DIRECT HERNIAS REPAIRED WITH TANTALUM MESH

RODOLPHE J. F. POMERLEAU, M. D., Sisters' Hospital, Waterville, Maine

Tantalum mesh or screen is another product of a long line of absorbable and non-absorbable materials used in the repair of hernias. The product is expensive but the results obtained justify its use. It is a non-chemical, non-irritating, fine metal screen that is fairly easy to work with. The material is pliable and can be trimmed to conform to the size and shape of the area to be repaired. The screen is anchored over the defect and held in place with different type sutures, such as fine steel wire, tantalum wire or black silk. Catgut is never used as it will either cut through or absorb before the healing process is complete. During the healing of the wound, fine areolar connective tissue infiltrates through the innumerable small holes in the mesh eventually causing it to become an integral part of the fascia producing a very strong repair and support.

It is especially recommended in large hernias difficult to repair because of thin, tearing, inadequate fascial tissue. It is used also when conventional type repair has proven unsuccessful and the hernia recurred. It has rendered excellent results in these cases and also in incisional, umbilical, and epigastric hernias. It is seldom used in children.

The case reported here is that of a primary repair with mesh of a case of bilateral inguinal and scrotal hernias in a man 65 years of age. To have attempted conventional repairs would probably have only resulted in a recurrence of the condition because of the associated medical complications.

Physical examination revealed a man with two large direct scrotal hernias dating back about fifteen years. He had to quit work several years ago because the size of the hernias prevented him from being able to carry on his work which consisted of prolonged walking and standing. Medically he had advanced Parkinsonian syndrome and was a chronic asthmatic further complicated with bronchiectasis. He responded poorly to medical treatment preoperatively.

Under spinal anesthesia, the right side was repaired first, as this side gave evidence of being partially obstructed. A Bassini type operation was per-

formed. The direct hernial sac contained a considerable portion of small intestine. After the aponeurosis of the external oblique, which was thin and torn, was approximated, a piece of tantalum mesh about 4 inches long and 2 inches wide was placed over the aponeurosis and sutured in place with fine steel wire. Early ambulation was allowed because of the medical condition present.

Two weeks later, hernia of the left side was repaired, also under spinal anesthesia. A Ferguson type repair was performed, and the sac was found to contain omentum and large intestines including sigmoid colon. A piece of mesh of similar size was placed over the aponeurosis of the external oblique; it was anchored in place with black silk suture. Recovery was uneventful and early ambulation allowed.

Patient was discharged two weeks later; subsequent post-operative visits revealed two well healed incisions and no complaint of pain or discomfort and no evidence of recurrence.

SUMMARY

Tantalum mesh is a non-absorbable fine metal screen that is non-irritating and non-corroding. It is fairly expensive and recently has been difficult to obtain. A piece 6" by 6" costs \$26.50. It has been used to repair recurrent hernias and large incisional hernias of different types. Because of the constant coughing and other medical complications in the present case, the repairs were made with this material to prevent recurrence. Bassini and Ferguson type procedures were used on left and right side respectively. On one side (right) the mesh was anchored with steel wire and the other with black silk. Sufficient time has elapsed to report that neither side has recurred and that either suture material is satisfactory to use. It could be mentioned here that the mesh can be placed under the fascia just as well as over it, and in some cases it has been placed directly over the peritoneum without any evidence of irritation, and with good surgical results.

Medical Schools Set Enrollment Record: More Doctors Graduated. Medical Schools of the United States in the last year took further steps to protect the future health of the nation by enrolling the largest number of students in their history.

A total of 26,191 students were enrolled in 79 approved schools in the United States for the 1950-51

academic year. This compares with the previous high record of 25,103 in the year before, an increase of 1,088 (4.1%). Since 1941, when there was an enrollment of 21,379 students in 77 approved schools, the increase has been 4,812 (22.5%). (News Release from the American Medical Association, September 7, 1951.)

RETRO-PUBIC PROSTATECTOMY

W. A. GREENLAW, M. D., and L. A. GUTE, M. D., Sisters' Hospital, Waterville, Maine

Two cases of retro-pubic prostatectomy as described by Terrence Millin* are presented.

Some of the features of the operation are that it is extra-vesical thereby avoiding supra-pubic bladder drainage with its frequent slow closure and fairly high incidence of persistent fistula. It is applicable to all types of prostatic hypertrophy being more easily carried out with the adenomatous type of enlargement and somewhat more difficult with fibrous type of enlargement; it is relatively short and relatively shock free; it is anatomically sound and no important organs are interfered with or endangered; for the age group the mortality is low. Post-operative course is easy for the patient and staff and is rarely longer than two weeks.

Pre-operative preparation is the same as for other prostatic surgical procedure. Vital signs should be within normal limits, and any indication of cardiac failure should be corrected.

Phenolsulfonphthalein excretory tests should be constant despite the percentage of excretion; non-protein nitrogen should be below forty.

As to the operation, spinal or general anesthesia can be used. Cystoscopy can be carried out at the time of operation. A midline or Pfannenstiel incision is made in the lower abdomen. Frequently multiple large veins are encountered in the peri-vesical layer of the endo-pelvic fascia. There is frequently a large central vein from the deep dorsal vein of the penis and the two veins lateral to this central vein. These can be ligated and bleeding in the area is thereby well controlled. With a swab, fascia and fat can be cleared from the lateral and anterior aspect of the vesical neck. An incision is made one centimeter distal to the bladder neck through the peri-vesical fascia and the true prostatic capsule. The lower flap is then undermined and the anterior and lateral aspects of the false capsule are exposed. An inverted V incision through the false capsule is carried down to the adenomatous tissue which is white in appearance. The V flap is elevated and the lower margins of the lateral lobes are freed from the false capsule, and continuing with the finger the lateral and middle lobes are freed from below upward.

Prostatic vessels arising at five and seven o'clock of the bladder neck are easily clamped and either ligated with 00 plain catgut or are fulgurated thereby well controlling the bleeding. A number eighteen Foley or Twinem catheter is placed in the bladder

for drainage. Hemostatic material can be tied to the catheter for control of oozing but is usually unnecessary and inadvisable because of frequent obstruction of the catheter and because such material may later act as a nidus for calculus formation. The false capsule is closed with continuous 0 plain catgut, the true capsule and the peri-vesical fascia are closed with three or more interrupted 0 chromic catgut. Penrose drains are placed in the retro-pubic space. The rectus sheath is closed with interrupted number one chromic catgut sutures and the drains are brought out through the skin two or three centimeters above the symphysis pubis to prevent an osteitis pubis.

Post-operative care; fluid intake is maintained at a level so that at least one thousand five hundred cubic centimeters of urinary output is maintained in twenty-four hours. Retro-pubic drains are removed from the third to the sixth day. The catheter is removed from the fifth to the tenth day.

The patient is allowed out of bed within twenty-four to forty-eight hours.

Post-operative complications are the same as for other types of operation but are somewhat less except for possible osteitis of pubis and sacrum.

Case 1.—H. H. was a seventy-five-year-old white American retired male laborer with chief complaint of difficulty in starting urinary stream, first seen as an out-patient.

For four years he had been having difficulty in starting the urinary stream, burning on urination, intermittency, and nocturia of six times. For one month he had been having moderately severe supra-pubic pain and had been urinating small amounts every fifteen minutes for one week.

He had had no previous serious illnesses. Physical examination revealed a thin male with a blood pressure of 130/70. The pulse rate was 80. Arcus senilis was present. No abnormalities of the chest were noted. There was a globular mass extending from the symphysis to the umbilicus which disappeared upon catheterization and after obtaining 1500 c.c. of urine immediately after voiding one ounce of clear urine. The prostate was three times the normal size and a few firm nodules were palpable. The prostate was not tender.

He entered the hospital on the sixth of December, 1950, and an indwelling catheter was inserted in the bladder. The non-protein nitrogen on admission was 40 mg.% and two days later was 25. Blood Count was 3,800,000 R. B. C.; 11 Grams % of Hemoglobin;

* "Lancet," December 1, 1945, Page 693.

8,200 W. B. C.; 67% Polymorphonuclear cells; P. S. P. was constant at 55% in two hours; urine contained one plus albumin and many white blood cells in clumps. Electrocardiograph and chest X-ray were within normal limits.

Cystoscopy revealed moderate lateral and middle lobe enlargement with encroachment of the outlet of the bladder as well as marked trabeculation of the bladder.

After one blood transfusion and three days after admission a retro-pubic prostatectomy as described above was carried out. A moderately large fibro-adenomatous gland was removed. Twenty-four hours after the operation the patient removed the Penrose drains of the retro-pubic space while asleep and small soft rubber catheters were placed along the sinus tract. These were removed on the third post-operative day. The urethral catheter was removed on the fifth day and the patient voided easily and spontaneously thereafter. There was no suprapubic drainage. He was discharged on the ninth post-operative day without complaints, with wound having healed per primum.

He has been followed as an out-patient and maximum residual urine has been 10 c.c. He has had no complaints except for nocturnal incontinence for only two weeks after operation.

Number 22F and 24F urethral sounds have been passed with ease every six weeks. Cystoscopy carried out on the twenty-first of May, 1951, revealed no prostatic intrusion of bladder on urethra.

At the present time he voids easily, has nocturia once or twice per night. Urine contains 3 to 10 W. B. C.

Case 2.—C. S. was a seventy-five-year-old white American retired millwright with chief complaint of inability to urinate, admitted to the hospital July 15, 1951. Three weeks before admission he had had acute influenza. Since that time he had frequency, hesitancy and nocturia four times per night. For five days he had been unable to urinate and had been catheterized twice per day with 1000 to 1500 c.c. of urine being obtained each time.

He gave a past history of having had typhoid fever in his youth and had frequent episodes of "irregular pulse." Twenty years ago he had been treated for

severe "dropsy" and had taken digitalis intermittently since that time.

Positive findings on physical examination were blood pressure 144/80, moderate cardiac failure and auricular fibrillation. The prostate was three times its normal size and was of soft consistency.

Cystoscopy revealed lateral lobe enlargement with bladder encroachment. There was moderate trabeculation of the bladder but no stones, tumors or diverticulae were noted.

He was digitalized with marked clearing of the lung. X-ray of the chest revealed a cardiac diameter of 18 cm. and thoracic diameter of 32 cm. Electrocardiogram was interpreted as indicating arteriosclerotic heart disease. Blood on admission was R. B. C. 5,150,000; W. B. C. 12,200; Differential — Polys. 53, Lymphocytes 41, Eosinophils 2, Basophils 2, Monocytes 2. N. P. N. on admission was 42 and three days later was 24. Urine — Specific gravity 1.001; W. B. C. 8/HPF; R. B. C. 4/HPF. P. S. P. was constant at 50% in two hours. He was given quinidine therapy for three days. On the 20 July, 1951, under general anesthesia a retro-pubic prostatectomy was done. A large adenomatous prostate was removed. On the fifth post-operative day drainage tubes were removed. On the morning of the seventh post-operative day the catheter was removed and the patient voided spontaneously throughout the day. During the night, however, the patient had a severe bout of nocturnal dyspnea and there was slight urinary drainage from the sinus tract of the retro-pubic area and the catheter was re-inserted. There was no more drainage after the twelfth post-operative day and catheter was again removed and the patient voided spontaneously.

He was discharged on the seventeenth post-operative day voiding spontaneously. Cardiac compensation is fair but he has intermittent bouts of auricular fibrillation.

SUMMARY

Some of the features of the retro-pubic operation of prostatectomy are discussed. Two cases are presented one of which was a good risk patient with a short convalescence; the other a somewhat of a poor risk patient with a somewhat prolonged hospital course for this type of operation.

American Medical Education Foundation. The Medical schools of this country have recently received their share of the first \$1,000,000 from the National Foundation Fund. The first grants were small — \$15,000 to four-year schools and \$7,500 to two-year schools.

The Foundation is pleased to announce the appointment of a full time executive secretary—Russell F. Staudacher. He is at A. M. A. headquarters, 535

North Dearborn Street, Chicago. Please feel free to call upon him for information at any time.

The Educational Foundation wants \$1,000,000 a year. Have you contributed?

In the August 4, 1951, issue of the *Journal of the American Medical Association*, on page 1329, you will find information about contributions to the American Medical Educational Foundation as of July 1, 1951.

THE SURGICAL USE OF STEEL WIRE

R. L. CHASSE, M. D., Sisters' Hospital, Waterville, Maine

Probably the very first attempt to ligate vessels and close wounds by the ancient Greeks was done by the use of some form of metal wire — usually fine gold, spun in single or multifilament strands. They also made use of hemp, tendon, silk, Egyptian cotton and even catgut. The ancient Egyptian surgeons to the royal families used gold and suture wire in their crude attempts at reparative surgery. They also were often responsible for embalming the nobility, and in this latter art, great masses of gold wire were wrapped about the corpse as part of the ceremony of burial. So we find that our earliest forebears developed the use of non-absorbable metallic sutures and ligatures in the art of surgery. Whatever successes or failures these daring ancients had cannot be judged by our present day standards. The ancients, with no knowledge of sterile surgical technique, no antibiotics or allied drugs, were doomed to inevitable failures.

As the centuries rolled forward, the use of metallic sutures was many times approved and condemned. The famous William Harvey while studying at Padua learned about gold and silver ligatures from Hieronymus and brought this knowledge back with him to the English barber-surgeons. He had, like the others before him (and many countless others since his "Anatomica de Notis Cordis" of 1628) had varying success with the use of metal wire.

Philip Syng Physick introduced lead wire in 1816 after noting that lead bullets embedded in the human body remained for years without evident reaction. His use of lead wire enabled him to successfully complete surgical procedures upon which he had failed by other methods.

H. F. Levert¹ experimented with ligatures of lead, gold, silver, platinum and brass and by arterial ligatures upon dogs. He confirmed Philip Syng Physick's earlier suggestion that lead wire was the suture material that most often led to success in the healing of old fistulae and was the best material for ligation of blood vessels. Silver wire had its first introduction in 1849. J. M. Sims² first used silver in the repair of vesico-vaginal fistulae and had immediate success.

Babcock,³ about 1928, began using first heavy alloy stainless steel wire and later in 1931 finer annealed steel wire — also an alloy. He and his colleagues at the Temple University Hospital used alloy steel wire in over 20,000 operations, some with all wire technique, others with silk, catgut, and/or other material, as well as the wire.⁴ His conclusion is that steel wire causes the least amount (if any) of tissue destruction or adverse tissue reaction.

O. P. Large⁵ and D. J. Preston⁶ made an intensive study of the relationship concerning tissue reactions to catgut, silk, and stainless steel wire. Three parallel incisions were made into a dog's stomach. One was closed with catgut, the second with silk, and the last with steel wire. Upon examination of the dog's abdomen and stomach two weeks later, the catgut closure was covered by a thick layer of adhesions, the silk closure by adhesions by a less intense character, and the wire by no adhesions at all. The catgut presented the most marked and destructive tissue reaction consisting of an intense polymorphonuclear leukocytic infiltration and necrosis of contiguous tissues. They made further tests of wound healing and showed that the "six day lag period" before progressive healing occurred is due largely to irritating sutures. There is no "lag period" of healing when wound approximation by nonirritating sutures are employed, such as stainless steel. Union begins promptly and progressively increases in strength.

They introduced small pieces of catgut in a sterile field of skin with the ends protruding. In one week, the formation of a hole appeared with a dark zone of necrosis. The same technique, using fine silk, was attempted. In one week, an area of relatively slight erythema surrounding the silk was noted. But when stainless steel sutures were similarly tested, no clinical reaction was noted even at the end of one month.

The requisites for material that is to be used as a ligature or suture are strength, flexibility, insolubility in live tissues and chemical inertness. Tantalum is the only element and stainless steel the only alloy at present that meet these requisites. And to compare tantalum with stainless steel,—the former is somewhat stiffer, more brittle, not as strong and much more costly than stainless steel.

Because stainless steel wire is so smooth and glistering, it has been found to carry infection along the suture tract to a much less degree than any other suture material known. For this reason, surgery in contaminated areas of the body as an infected abdominal cavity, traumatic scalp lacerations (always potentially infected) chronic intestinal fistulae and vesico-vaginal and rectovaginal fistulae is by far the best done with steel wires. It has no peer when buried in a contaminated field.⁷

As with catgut, silk, and other types of non-metallic suture material, the selection of the proper size wire varies with the structure to be sutured. Small nerve repair requires 40 gauge (diameter 0.00314 inch) wire, atraumatic; intestinal serosa of adult, size 36 to 38 gauge, atraumatic (0.005 to 0.0039 inch). Peri-

toneum closure requires 32 gauge (0.00795 inch) as does the abdominal muscle repair. For repair of fascia, muscle sheaths, and aponeurosis size 30 gauge (0.01003 inch) has been found to be ideal. Subcutaneous fat is best closed interruptedly with 35 gauge steel (0.00561 inch). The skin repair is best done using 35 gauge interruptedly as a supporting suture, and 36 or 38 gauge continuously as an approximating suture. For most operations, Babcock⁴ summarized wire selection as follows: 35 gauge for closure of skin, fatty, fascia, and serosa; 32 gauge for repair of the thin aponeurosis; and 30 gauge wire for heavy fascial layers, muscle sheaths, and aponeurosis.

Several points in the actual use of wire must be borne in mind. No other knot but a *square knot* should be used, and only the second tie of the knot should be applied with firm traction if a suture is being tied. When tying a ligature, each half of the knot is tied with strong traction. A three hitch knot or a one hand tie knot should never be attempted because a slip knot may form with eventual pulling apart of the tie. The ends of the wire should be cut directly upon the knot or if left long, the ends should lay flatly on the tissue. To prevent glove and hand puncture while tying, the sharp ends of the wire should not be grasped or touched.

One of our modern trends in the science of surgery is early postoperative ambulation. Stainless steel wire sutures more than any other single factor has more safely increased the safety of early ambulation following most types of abdominal operation. No fear of wound disruption or ligature slipping need be entertained in all steel wire technique. The wound closure is secure and nonirritating.

Steel wire has been found exceptionally useful in the following conditions: simple and difficult primary herniae; large incisional herniae; primary repair after excision of pilonidal cyst; closure of vesicovaginal and rectovaginal fistulae; reconstruction surgery for cleft lip and palate; for immediate closure of an abdominal wound dehiscence; in ophthalmological surgery for treatment of coloboma; for repair of bladder exstrophy; and for many other conditions too numerous to mention.

Therefore, it may be summarized that in general (there being exceptions, of course) stainless steel alloy wire is superior at the present time as a suture and ligature to any other known material. Spivack⁸ states the trend is more and more to this type of non-absorbable suture material.

BIBLIOGRAPHY

1. Levert, H. F.: "Experiments by Metallic Ligatures," Am. Jour. M. Sc., 4:17, 1829.
2. Sims, J. M.: "Story of My Life," New York, Appleton, 1884, p. 246.
3. Babcock, W. W.: "Ligatures and Sutures of Alloy Steel Wire," Ibid 102, 1756, 1934.
4. Babcock, W. W.: Surgical Clinics, S. Clin., North America, 12:1, 1947.
5. Large, O. P.: "Comparison of Tissue Reactions from New Sutures," American J. Surgery, 60:415, 1943.
6. Preston, D. J.: (a) "Sutures of Annealed Stainless Steel Wires," Am. Jour. Surg., 49:56, 1940. (b) "The Mechanical Superiority of Annealed Stainless Wire Sutures and Ligatures," Surgery, 9:896, 1941.
7. Dulin, J. W.: "Use of Alloy Steel Wire as Suture Material," J. Iowa State, M. S. or 33:546, 1943.
8. Spivack, J. L.: "The Surgical Technique of Abdominal Operations," Chicago, Debour, S. B. 1938, p. 7.

REPORT AND OBSERVATIONS ON A FULL THICKNESS SKIN GRAFT TO A HAND

E. J. SMITH, M. D., Sisters' Hospital, Waterville, Maine

F. R., aged 25, was admitted with a history of having caught his right hand in a carbonizer while working in a local woolen mill.

Examination revealed an avulsion of the skin and subcutaneous fat pad of the right palm beginning at the wrist and including the whole palm. Distally, the flap was separated from the base of the little finger, the tear extending across the base of the little finger from the outer aspect of that finger up the inner aspect to approximately the level of the first interphalangeal joint. It was not detached from the base of the other three fingers, but a tear extended up the outer aspect of the index finger to the level of the mid-portion of the middle phalanx. In the region of the

thumb, the tear included all of the web and a portion of the skin and subcutaneous tissues overlying the base. On elevating the flap one observed that the muscles of the thenar eminence were nearly all torn away, approximately two-thirds of the group being included in the avulsed pad. The adductor pollicis was attached to the thumb, but was completely torn away from its origin. The tendons to the fingers were laid bare and one observed only portions here and there of all that remained of the anterior volar arch.

Under general anesthesia, the wound was debrided. Because of the marked loss of thenar musculature, it was decided not to return the base of the adductor

pollicis to its original sight; but to incorporate it into what was left of the muscles of the thenar eminence. Bleeding points were ligated with fine plain catgut. Fine chrome gut was used in the muscle sutures. The skin edges were approximated loosely with widely spaced interrupted sutures of fine black silk. Many small rubber drains were inserted beneath the pad. Sterile dressings superimposed by a large sterile waste pad, all held in place by an elastic bandage, were applied. A catheter was incorporated so that the dressings might be moistened. Hand and forearm were immobilized on a splint.

Parenteral and local penicillin solution in normal saline were given but the inevitable happened. In six days the flap was undoubtedly gangrenous and at the end of sixteen days we had debrided all of what had been the large flap defect. It was not until fifty-five days that the hand defect healed with fibrous tissue. Needless to say, it was markedly deformed with contractures.

In anticipation of what was to come, on the twenty-first day after admission, under local anesthesia, an area of skin and subcutaneous fat approximately nine by five inches, in the region of the left upper abdominal wall was formed into a tube, both ends being left attached. Fine stainless steel wire sutures were used in suturing the tube edge. The skin defect below was sutured with fine steel wire and retention sutures of heavier steel wire were placed. Twelve days later, the tube showing evidence of good blood supply and being healed well, the end near the midline was completely severed from its base. After control of the bleeding points, it was again resutured to its original base.

On the fifty-fifth day, under general anesthesia, using bloodless technique as described by Bunnell, all scar tissue was removed from the right hand by sharp dissection and all contracture deformities overcome. The tube end, which had been previously detached and resutured was again detached, the tube opened along the suture line, and approximately two-thirds of the fatty layer beneath cut away. The leading edge of this new flap was then sutured to the freshened skin edges of the hand defect along the thumb, finger, and wrist aspects, using fine steel wire interrupted and vertical mattress sutures. A pressure dressing with a contained catheter was placed over this new flap and hand. The parts were immobilized in a circular body jacket.

Fifteen days following the above procedure, the attached portion of the abdominal flap was freed, trimmed to size, scar tissue dissected free from the hand, again using a bloodless technique, and the flap attached to the remaining free border along the medial aspect of the hand. Pressure dressing with catheter was applied and the hand and arm immobilized in a

splint. The abdominal wound was closed with stainless steel wire sutures.

Healing took place satisfactorily and the patient was discharged on the eighty-seventh hospital day. The graft had but little sensation; there was no tenderness. There were contractures at the base of the little finger and in the new web of the thumb. Flexion and extension movements in the remaining fingers was unlimited. Muscle power in the thumb movements was exceptionally good, being only slightly diminished.

The next two months were spent in a rehabilitation center in Boston where a daily educational and physio-therapy program were carried out. Freer movement and increasing strength gradually took place but scar tissue contractures persisted in the web of the thumb and at the base of the little finger. At the end of this time, he returned here. An excision of this scar tissue excess with "Z"-plasties on the two areas was carried out under general anesthesia and the bloodless technique. At the end of a month he was discharged. During this stay in the hospital, exercises were performed daily, beginning the day following operation. At the time of discharge the range of motion in the hand, thumb, and fingers was full; there was some sensation (pain and touch) in the grafted area; there was no tenderness.

On reviewing a case of this type several thoughts come to mind. The first is the matter of debridement, the kind of and the amount. We are of the school that believes that copious lavaging devitalizes tissue. Second, as for dry against moist dressings, we believe that warm moist dressings are in order until all question of doubt of tissue viability is eliminated. As for solutions for moistening the dressings, there is always a question as to choice. Normal saline, boric acid solution, penicillin in normal saline were all used at one time or another on the above case. The most satisfactory one was probably normal saline. Local penicillin, with or without sulfanilamide powder, did not appear to keep contaminants down any better than did normal saline and parenteral penicillin. At one time when the hand was granulating before the application of the graft and boric acid was being used, a relative oliguria developed, but we were unable to demonstrate any boric acid in the urine. Nevertheless the solution was discontinued and the oliguria improved. On one occasion when the hand was granulating and contaminants seemed to be excessive and difficult to control with other solutions, Dakin's solution was resorted to, but had to be discontinued because of increased pain in the hand; the pain disappeared when the Dakin's solution was discontinued.

When contaminants are under control and the viability of the skin edges is unquestionable, dry dress-

ACUTE TORSION OF THE OMENTUM WITHOUT HERNIA: CASE REPORT

OVID F. POMERLEAU, M. D., Sisters' Hospital, Waterville, Maine

A case of acute torsion of the omentum is reported because it is a relatively rare condition and for its value in alerting one to think of it as a cause of pain in the lower right quadrant. According to Aimes as quoted by Bockus, Marchette in 1851 was the first to report a case of acute torsion of the omentum, associated with inguinal hernia. It was believed to be always associated with hernia until Eitel in 1899 reported his case. In 1907, Lejars was able to collect 66 cases. In his book "Urgent Surgery," Lejars described two personal cases, one which he did not diagnose and the other which he diagnosed preoperatively. Etherington-Wilson, as quoted by Maingot, states that up to 1945 there were some 190 cases of torsion recorded in the literature.

Lejars classifies torsion into three varieties: 1. Omental torsion combined with an irreducible hernia. 2. Torsion combined with an empty hernial sac. 3. Torsion without any hernia.

Bockus lists the most common causes of acute torsion of the omentum as follows: 1. Pre-existing hernia. 2. Abdominal trauma. 3. Severe muscular activity. 4. Overeating. Most of the cases fall in the age group of 30 to 55, and two-thirds are in males.

The diagnosis is very difficult. Around 80 per cent are diagnosed pre-operatively as acute appendicitis and the remainder as acute cholecystitis, acute pancreatitis, or perforated gastric ulcer. The first symptom is pain in the lower right quadrant with or without nausea. There may be a mass, which is indefinite in outline, if the torsion is high in the omentum. There is rigidity of the right rectus with moderate temperature elevation and leukocytosis. Lejars mentions the co-existence of an irreducible omental hernia or even the presence of an empty hernial sac on the same side.

The treatment is early laparotomy with resection of the affected part.

Report of case: An obese young man of twenty-seven presented himself on August 25, 1950. The family history was irrelevant. He gave a history of having had a right herniotomy successfully performed nine years before. His chief symptom was persistent pain in the lower right quadrant for two days. He felt nauseated and had vomited. Examination revealed an obese, healthy-looking male. There was a right inguinal scar, well healed. Examination of the abdomen revealed rigidity of the right rectus. No masses were felt. The liver and spleen were not palpable. The acute tenderness was localized over McBurney's point. A provisional diagnosis of acute appendicitis was made and he was admitted as a surgical patient at the Sisters' Hospital. On admission his temperature was 100°, pulse 90, and respirations 18. The blood count showed 5,340,000 red blood cells, 10,200 white blood cells with 76 per cent polynuclear cells. An immediate operation was performed. The abdomen was opened by a right rectus incision. As the hand was inserted to seek out the appendix, a mass, the size of a walnut, was felt. This was brought out of the abdominal cavity and was found to consist of the lower right corner of the omentum, which was twisted four or five times, strangulating about two inches of the omentum. Gangrene had already taken place in the strangulated area. A ligature was passed above the twisted pedicle and the gangrenous area resected. A retrocecal appendix which was not acutely diseased was removed. An uneventful recovery occurred.

BIBLIOGRAPHY

1. Lejars: "Urgent Surgery," Volume I.
2. Bockus: "Gastro-enterology," Volume II.
3. Maingot: "Abdominal Operations," 2nd edition. Appleton, Century Crafts.

Report and Observations on a Full Thickness Skin Graft to a Hand—Continued from page 291

ings may be resorted to safely. In conjunction with these dressings, we used petrolatum strips, chloresium ointment and furacin ointment. The petrolatum caused too much sogginess of the tissues. In this particular case, furacin ointment appeared to work the best.

It will be noted that some six months elapsed between the start and the end of treatment. One may wonder at the prolonged hospitalization but it is firmly belived that one cannot hurry with this type of surgery. It is imperative that one be assured of viability of the tissue; that the steps in procedure be

carefully planned and that no advances be made until one is sure that the preceding step is complete and all the tissue is ready for the next step. As for procedure, the bloodless technique as described by Bunnell in his excellent treatise "Surgery of the Hand" undoubtedly aids greatly in diminishing trauma, lessening hemorrhage, and permitting better tissue approximation. As for choice of sutures, stainless steel is our preference. We used No. 36 on most of these procedures and found that much better approximation was obtained in the use of vertical mattress rather than ordinary interrupted sutures.

PRESIDENTIAL NOTATIONS

The President was recently honored to have the mid-summer meeting of the Council at his home in Camden. Augmented by the presence of several distinguished committee chairmen, wives and children, the party took on the color of a family reunion. However the affairs of the association commanded the serious attention of the Council and its advisors from mid-afternoon until evening hours when adjournment occurred and in pouring rain your servants dispersed to remote points of the state.

The unanimous selection by the Council of The SamOset Hotel, Rockland Breakwater, for the meeting place for the 1952 annual session may be warmly approved, it is hoped. A change to this distinguished coastal resort will be pleasant with the promise of superb food, warm salt-water swimming pool, scenic nine-hole golf course and comfortable rooms all probably at somewhat lower rate with pool and golf course at no extra charge. Careful review of facilities promises adequate space for all purposes. The Scientific Committee expects its well arranged program to be appreciated and largely attended.

You will recall John Cline's appeal to our members for support of the American Medical Education Foundation. Let us recall our individual indebtedness

for educational opportunities received and appreciate the privilege of helping to resolve the large combined deficit of our great medical schools throughout the land. Furthermore, let us help to dispel the specter of increasing government control in one more direction! Remember that you may, if you desire, name your favorite school as beneficiary of your contribution. A recent review of contributors to this fund revealed the name of a single individual from our own state! Please consider the merits of this cause and give promptly within your means.

Incidentally your president is shortly flying to San Francisco to visit his older son, Brewster, Ensign in the United States Naval Reserve, assigned to duty on a destroyer. While in that charming city he hopes to have the opportunity of entertaining at dinner our distinguished National President, John Cline.

To add a touch of local color to these notes let me remind you of the presence in Camden Harbor this summer of a sloop bearing on her stern the pharmacological cognomen *The Dramamine* while her dingy is appropriately called *The Pill!*

C. HAROLD JAMESON.

EDITORIALS

State Aid To Hospitals

No legitimate quarrel can be possible with the current pronouncement by the Commissioner of Health that State Aid for the indigent shall be withheld from hospitals whose staff members charge for services rendered these underprivileged individuals. Indeed it is no new departure for in the larger institutions fees for ward patients may not be charged; and in the smaller hospitals feeling of the indigent has probably been practiced in exceptional cases only. It is unthinkable and far removed from the concept of traditional procedure in American Medicine that the ethical physician should fatten on income derivative from such sources. An alert general public contribut-

ing by taxation and voluntary support to hospital financing may well expect of the medical profession continuing high grade gratuitous service to this class of hospital patients and unlikely it is that they will be let down. The individual physician on the other hand can rest assured that his rights will be fully protected by adequate screening of deserving patients. The Council has recently reviewed the current situation and unanimously approved of the general plan proposed for the distribution of State aid. There can be no doubt of the steadfast coöperation of the profession.

C. HAROLD JAMESON.

FALL CLINICAL SESSION

Lewiston, Maine — October 28, 29, 30

The complete program for the Fall Clinical Session will appear in the October issue of the MAINE MEDICAL JOURNAL and in addition individual announcements and programs will be sent to all members shortly after October 1st. This announcement will also include information on hotel facilities and reservations but in the meantime put notice on your calendar for October 28, 29 and 30 and arrange your work accordingly.

The program has taken shape well and this outline is but a glimpse to whet your interest. The day sessions are to be held at the Central Maine General Hospital and two meetings will follow dinner at the DeWitt Hotel on Sunday and Monday evenings.

Registration will be at both the Central Maine General Hospital and the DeWitt Hotel from 2:00-5:30 P. M. on Sunday. Committee members, Drs. William Cox, Alcid DuMais, D. F. D. Russell, Charles Steele, M. S. F. Greene, and Romeo Beliveau will be on hand to welcome guests. After dinner Dr. Jameson, the President of the Maine Medical Association, and Dr. Greene, President of the Androscoggin County Society, will extend greetings.

Dr. Harry Greene, Chief of the Department of Pathology at Yale, will begin the evening meeting with a discussion of recent programs and trends in research in the malignant diseases. He will be followed by Dr. Overholt, who, with Dr. Greene and two visiting clinicians, will present a round table symposium on malignancies of the chest.

Beginning at 9:00 A. M. on Monday morning four visiting physicians will have discussions and case presentations on malignancies of the rectum, breast, tongue, and female genital tract.

The last Monday afternoon session will open the portion of the program devoted to various aspects of cardiology and their relationship to other problems and specialties. This portion of the program will follow the general outline of a review of research and round table for Monday evening and a presentation of specific aspects and cases on Tuesday morning.

We know that the various speakers are going to be outstanding individuals. Make your plans now for spending October 28, 29 and 30 in Lewiston as guests of the Androscoggin County Society at a sparkling Clinical Session. We will get further details to you as they become available.

NECROLOGY

Frederick R. Carter, M. D.

1877 - 1951



Frederick R. Carter, M. D., 74, of South Portland, retired Secretary-Treasurer of the Maine Medical Association, former Assistant Superintendent of the Augusta State Hospital, and long prominent in Maine medical circles, died August 19, 1951, after a long period of failing health.

Born in Troy, Maine, July 30, 1877, son of Mr. and Mrs. J. Nelson Carter, he attended Troy schools, was graduated from the University of Vermont and received his medical degree from that institution in 1915. Following internship in a New York hospital he began practice at the Augusta State Hospital in 1915. He became Assistant Superintendent in 1918, a position he held until his retirement in 1942.

In 1942, he moved to South Portland, where he served as medical examiner for army inductees at Fort Williams, Fort Preble and at Stevens Avenue Armory.

He served as Secretary-Treasurer of the Maine Medical Association from 1937 and as Editor and Business Manager of *THE JOURNAL OF THE MAINE MEDICAL ASSOCIATION* from 1941, until his resignation because of ill health on June 19,

1951. He had also served on the Council of the Association, one year as Chairman.

He was a former President of the Kennebec County Medical Association and had served as its Secretary-Treasurer for nearly 15 years. He was President of the Maine Psychiatric Association in 1950 and was active in National Psychiatric Groups.

He was a member of the Portland Kiwanis Club and the Washington Lodge, A. F. & A. M., at Burlington, Vermont, and was active in many other service and fraternal organizations.

He married Lorana Harding of Troy who died in 1936. In 1942, he married the former Pauline Boston of South Berwick, who survives him.

Besides his widow, he leaves two sisters, Mrs. Harriet Wright of Bath and Mrs. Victoria Brown of Gardiner; a brother, Wilbur Carter of Troy, and several nieces and nephews.

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Dean Fisher, M. D., Lewiston

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elmore, M. D., Dixfield

Penobscot

President, Harry D. McNeil, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Stanley Marsh, M. D., Guilford
Secretary, Norman H. Nickerson, M. D., Greenville

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Somerset

The annual meeting of the Somerset County Medical Association was held on August 21, 1951, at Dr. Young's cottage on Lake Wesserrunnett.

The following officers were elected for the coming year:

President, Harland G. Turner, M. D., Norridgewock; Vice President, Edwin M. Lord, M. D., Skowhegan; Secretary-Treasurer, H. Carl Amrein, M. D., Madison. Board of Censors: John Friend, M. D., North Anson; George E. Sullivan, M. D., Bingham; and Lester F. Norris, M. D., Madison. Delegates to the Maine Medical Association: George E. Sullivan, M. D., Bingham; and Howard L. Reed, M. D., Skowhegan. Alternates: Dr. Turner and Franklin P. Ball, M. D., Bingham.

Program Committee: Albert J. Bernard, M. D., Skowhegan; Richard P. Laney, M. D., Skowhegan; and Dr. Amrein.

Following the meeting a buffet dinner was served to which the ladies were invited.

H. CARL AMREIN, M. D.,
Secretary.

A Little About Some of Your Colleagues

Dr. Adam P. Leighton has recently been reappointed by Governor Payne as a member of the Maine Board of Registration of Medicine. Adam is now starting his thirty-seventh year on the Board and this is a national record for length of service on this type Board. He has also been Secretary of the Board for many years.

Dr. Joseph G. Ham of Portland, is suspending his practice here while he takes a residency in General Surgery at the Strong Memorial Hospital, University of Rochester, N. Y.

Dr. Dean Fisher leaves the Central Maine General Hospital in Lewiston where he has been the Administrator and on September 15th takes on the duties as head of the State Bureau of Health in Augusta.

The Council got to talking (not unusual) at its meeting on Sunday, August 26th, about the number of father-sons doctors in this State. It interested them as they knew of several; we think it would interest the members. Why not send us the information? We'd like to know about any cases where the son is following along and the father still practicing whether they're together or even practicing in different states or countries.

Dr. Robert W. Belknap is practicing with his son (or vice-versa) in Damariscotta and says he expects this question on a telephone call, "Is this Old Dr. Bob or young Dr. Sam?"

Dr. George O. Cummings, Jr., Ear, Nose and Throat Specialist, is practicing with his father, also an ENT specialist, at 47 Deering Street, Portland.

His educational background is as follows: Graduate of Bowdoin in 1942. Graduate of University of Pennsylvania Medical School in 1945. Rotating Internship, Maine General Hospital, 1945-46. Captain, U. S. Army, M. C., 1946-48. Harvard Graduate School of Medicine, Department of Otolaryngology, 1948-49. Resident Physician, Syracuse Memorial Medical Center, Syracuse, N. Y., 1949-51. Head and Neck Clinic, Memorial Hospital, N. Y., for study of Cancer of Head and Neck, one month in 1951. Diplomate American Board of Otolaryngology, May, 1951.

Mrs. Cummings is the former Merna Thomas and they have three children; George, Daniel and Mary.

You must have information about some of your colleagues that would be of interest to the membership in general. If so send it to the Maine Medical Association office at 142 High Street in Portland. We are waiting for it!

For Simplified Dosage in Amebiasis

NEW

Diodoquin Tablets of

10 GRAINS

(650 mg.)



With the introduction of a new 10-grain (650 mg.) tablet of Diodoquin, the number of tablets necessary for treatment of amebiasis can be reduced from ten a day to three a day.

Thus the twenty-day recommended dosage schedule is accomplished with a total of 60 instead of 200 tablets. The cost to the patient is reduced accordingly.



A potent oral amebicide—

DIDOQUIN®
(diiodohydroxyquinoline)

—is a well-tolerated, relatively nontoxic compound containing 63.9 per cent of iodine.

Now available in tablets of:

3.2 grains (210 mg.), bottles of 100 and 1,000
10 grains (650 mg.), bottles of 60 and 500

Be sure to prescribe the 10 gr. (650 mg.) size for full adult dosage.

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

COMING MEETINGS

American Medical Association Clinical Session

The Clinical Session of the American Medical Association will be held in Los Angeles, December 4 to 7, 1951.

New England Regional Meeting American College of Physicians

A New England Regional Meeting of the American College of Physicians will be held at the Mercy Hospital in Portland, October 20, 1951.

All interested physicians are invited to attend.

Pediatric Institute for the General Practitioner

Pediatric Institute for the General Practitioner, Friday, September 21, 1951, at the Eastern Maine General Hospital, Bangor, under the sponsorship of The Division of Maternal and Child Health, Maine Department of Health and Welfare, endorsed by the Maine Medical Association.

PROGRAM

- 10:00 A. M. Welcome — Clair S. Bauman, M. D., State Chairman, American Academy of Pediatrics, Waterville, Maine.
- 10:15 A. M. Treatable Anemias of Infancy and Childhood — Louis K. Diamond, M. D., Associate Professor of Pediatrics, Harvard Medical School; Director of the Hematology Research Laboratory, and Senior Physician, The Children's Medical Center, Boston, Massachusetts.
- 11:45 A. M. Discussion Period.
- 12:15 P. M. Recess.
- 1:30 P. M. Drug Dosage for Children—Harry Shwachman, M. D., Physician to Infants' and Children's Hospitals of The Children's Medical Center. Director of the Division of Clinical Laboratories, The Children's Medical Center, Boston, Massachusetts.
- 2:30 P. M. Congenital Heart Disease, Treatment and Prognosis — Alexander Nadas, M. D., Associate Cardiologist, The Children's Medical Center, Boston, Massachusetts.
- 4:00 P. M. Ward Rounds — Albert Fellows, M. D., Chief of Pediatric Services, Eastern Maine General Hospital, Bangor, Maine.
- 5:00 P. M. Discussion Period.

Interim Session — American College of Chest Physicians

The Interim Session of the American College of Chest Physicians will be held at the Ambassador Hotel, Los Angeles, California, on December 2 and 3, 1951.

Dr. Edward W. Hayes, Monrovia, California, is chairman of the general arrangements committee for the Interim Session of the College, and Dr. Alfred Goldman, Beverly Hills, is chairman of the scientific program committee.

Address for detailed information: American College of Chest Physicians, 500 No. Dearborn St., Chicago 10, Illinois.

Annual Postgraduate Course in Diseases of the Chest

The Annual Postgraduate Course in Diseases of the Chest sponsored by the Council on Postgraduate Medical Education and the New York State Chapter of the American College of Chest Physicians, will be presented at the Hotel New Yorker, New York City, November 12-17, 1951.

The course is open to all physicians, but the number of registrants will be limited. Tuition fee is \$50.00; applications will be accepted in the order in which they are received. Applications should be sent to the American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

Military Surgeons to Convene in Chicago, October 8-10

The 58th Annual Convention of the Association of Military Surgeons of the United States will be held at the Palmer House in Chicago, October 8 to 10. Members of allied medical services such as nursing, dentistry, veterinary medicine, women's medical specialty corps, and medical service corps, as well as physicians, will participate in the sessions. Advances in military medicine since World War II, and current problems arising out of the critical world situation and the Korean conflict, will be discussed.

Col. Robert C. Cook, MC, AUS, Veterans Administration, Washington, is President, and Major General Harry G. Armstrong, Surgeon General of the U. S. Air Force, is First Vice President of the Association. Col. Charles B. Puestow, MC, AUS, Chief of Surgical Service, Veterans Administration Hospital, Hines, Illinois, is General Chairman of the Convention.

Medico-Military Symposium

The U. S. Naval Hospital, Chelsea, Massachusetts, will present a well-rounded symposium on military medicine during the week of 29 October. The medical profession and members of allied sciences are invited. Advance programs may be obtained by writing to the District Medical Officer, First Naval District, 495 Summer Street, Boston, Massachusetts.

Maine Chapter, American College of Surgeons

The Maine Chapter of the American College of Surgeons will meet at the Maine General Hospital in Portland, November 16, 1951. Dr. Eugene E. O'Donnell is in charge of arrangements.

NEWS AND NOTES

State of Maine
Board of Registration of Medicine

Adam P. Leighton, M. D., 192 State Street, Portland, Maine,
Secretary.

Physicians licensed to practice in Maine, July 11, 1951, at
Augusta, Maine.

Through Examination

- Dr. Herbert F. Barnes, State Hospital, Bangor, Me.
- Dr. Dale Rex Coman, University of Pennsylvania School of
Medicine, Phila. 4, Pa.
- Dr. Sydney H. Holloway, St. Stephen, N. B., P. O. Box 578.
- Dr. Joseph B. Kiel, 536-48th Street, Brooklyn 20, N. Y.
- Dr. Robert L. Ohler, USVA Center, Togus, Me.

Through Reciprocity

- Dr. Norman O. Gauvreau, Grove Avenue, Lewiston, Me.
 - Dr. John G. Koomey, Central Maine General Hospital,
Lewiston, Me.
 - Dr. Gerald C. Leary, Mercy Hospital, Portland, Me.
 - Dr. William B. McAvoy, 85 William Street, Portland, Me.
 - Dr. Leatrice K. Peck, 32 Forest Park, Portland, Me.
 - Dr. Sidney J. Peck, 32 Forest Park, Portland, Me.
 - Dr. Frank Ivan Pitkin, Mary Fletcher Hospital, Burlington,
Vt.
 - Dr. George Albert Saxton, Jr., 233 Walnut Street, Brookline
46, Mass.
 - Dr. Irving L. Selvage, Jr., Bryn Mawr Hospital, Bryn Mawr,
Pa.
 - Dr. Charles E. H. Upham, R. F. D., Boothbay, Me.
 - Dr. Alois Peter Warren, 40 Central Park South, New York,
N. Y.
 - Dr. Ralph Zanca, 115 Hemenway St., Boston, Mass.
- ADAM P. LEIGHTON, M. D.

Maine Chapter of American Academy of General
Practice

A Maine Chapter of the American Academy of General
Practice was formed in Waterville, August 19th, by 15 Maine
physicians with Dr. Walter D. Mazzacane of Old Orchard
Beach as President. Dr. Clyde I. Swett of Island Falls was
elected President-elect.

Other officers elected for this year were: Vice President,
Dr. Robert L. Cornell, Orono; Secretary-Treasurer, Dr.
George Loewenstein, Great Chebeague Island; Directors:
Drs. Carl M. Haas, Biddeford; David Ascher, Patten; and
Alexander Magosci, York Village.

COLLECTIONS

CAN be tactful
and friendly

- Your "auditor" confirms an unpaid balance
- Requests payment to close the records
- Institutes an "Installment Budget" plan where required
- Adjusts and settles differences

A courteous, "NO COST" service.

Send this ad for details.

PROFESSIONAL SERVICE CO.

25 HUNTINGTON AVENUE
BOSTON 16, MASS.

IF
ADVERTISED
IN THE JOURNAL
IT IS GOOD

WHY DON'T YOU GET YOUR PAY?

Over 500 physicians and 20 hospitals have increased
their incomes by placing their accounts with us for
adjustment, in a humane, honest and efficient
manner. So can you—let us tell you how. →

Reference: Maine Medical Association Secretary
MEDICAL AUDITING COUNSEL
297 WESTERN PROMENADE, PORTLAND 4, MAINE

**CLIP
AND MAIL**
Without obligation
send me full details con-
cerning your service.

Name

Street

City



From where I sit by Joe Marsh

What's So Funny?

Just finished reading a magazine article that "proves" you and I don't know what's funny.

Some psychologists came to this sad conclusion after telling jokes to a group of college students. Very often they would give out with what they considered a side-splitter—and not get even a chuckle. Other times the students would laugh their heads off at stories that weren't considered really funny.

From where I sit, I fail to see what makes a psychologist a better judge of humor than the rest of us. If a man gets a kick out of a joke that proves it was funny to him—doesn't it?

When psychologists try to set up a standard for a sense of humor for people they're getting too darn serious for me. It's the same thing when other "authorities" try to tell a man how he should practice his profession, or what kind of beverage he can drink. I'm partial to a glass of beer with meals myself—but I promise not to make any wisecracks if you prefer tea.

Joe Marsh

Index to Advertisers

Abbott Laboratories	XVI
American Meat Institute	XXIV
Ar-Ex Cosmetics, Inc.	XXIII
Ayerst, McKenna & Harrison	XXVIII
Borden's Prescription Products Div.	XVII
Camel Cigarettes	X
Coca-Cola	IV
Flaherty Co., Inc., John B.	XXV
Florida Citrus Commission	VIII
Frye Company, Geo. C.	XXV
General Electric Company, X-Ray Dept.	XVII
Jones' Private Sanitarium	XXVII
Lederle Laboratories Division	XI
Lilly & Company, Eli	I-XXA
Maine Surgical Supply Co.	XXIII
Mead Johnson & Company	XXXI
Medical Auditing Counsel	299
Merck & Co., Inc.	XIII
Mutual Benefit Health & Accident Assn.	XXVI
Nestle Company, Inc., The.	XII
Noyes & Chapman, Inc.	XXI
Parke, Davis & Company	II-III
Pfizer & Co., Inc., Chas.	XIV-XV
Philip Morris & Co.	XIX
Physician's Casualty Association	XXV
Ring Sanatorium.	XXVII
Russell Hospital.	XXVII
Searle, G. D. & Co.	297
Schering Corporation	XXX
Squibb	IX
United States Brewers Foundation	XXI
Upjohn	VI-VII
Washingtonian Hospital	XXV
Winthrop-Stearns, Inc.	XX
Wyeth, Incorporated	XXII
Zemmer Company, The	XXIII

Patronize Your Advertisers

NOYES & CHAPMAN

General Insurance

Serving Maine doctors
for over 90 years

PHYSICIANS' LIABILITY

Hartford
General Agents

465 CONGRESS ST.
PORTLAND, MAINE

E. D. Noyes

2-2841

L. D. Chapman



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, October, 1951

No. 10

LABORATORY CONSIDERATIONS IN FLUID AND ELECTROLYTE BALANCE*

IRVING I. GOODOF, M. D., Waterville, Maine

In no field of medicine is the regulation of fluid and electrolyte balance more important than in surgery. The management of a poor risk, elderly patient, with poorly functioning gastro-intestinal and renal tracts depends almost entirely on the ability to maintain a physiologic status with regard to the volume of blood and the concentration of its important elements. The purpose of this discussion is to present the role that the laboratory can play in assisting the surgeon in his care of such problems.

Due to the progress in instrumentation and methodology of the past decade, fairly complete study of the fluid and ionic constituents of the blood is now possible with relatively little expenditure of effort and time. It was once thought that with determination of chlorides and carbon dioxide combining power, the ultimate in detailed study of the electrolytes had been carried out. The routine study now, in the general hospital laboratory, consists of determination of blood volume, pH and sodium, potassium, chloride, and carbon dioxide content, as well as the less significant elements when indicated. The advent of the flame photometer has replaced the lengthy, tedious gravimetric procedures for determination of sodium and potassium with a quick, accurate method, yielding valuable results in minutes. The Van Slyke apparatus for carbon dioxide provides a relatively simple, rapid method, preferably used for carbon

dioxide content rather than capacity. The more simple, yet accurate, titration methods for chloride cut the total time down, so that all of these determinations can be reported within an hour. The pH of the blood or other material is best determined by electrical apparatus using the glass electrode.

Under what circumstances are these studies of value in the surgical patient? The preoperative study of poor risk patients will demonstrate occasional instances of decreased blood volume. These patients are prone to develop vasomotor collapse postoperatively, even with relatively slight trauma. Correction of the blood volume before surgery will save many patients and ease the mental load of the surgeon. It is freely admitted that such a study is not practical as a routine preoperative procedure, but is most valuable in selected cases.

The occasional postoperative patient who develops oliguria and anuria, frequently suffers primarily from altered electrolyte balance. The importance of adequate blood volume in renal function has long been known but the fact that sodium is greatly responsible for maintenance of blood volume is not so generally understood. We have recently seen a patient who developed anuria three days after cholecystectomy. She was anuric for three days, during which time she received glucose in water, for fear of sodium retention. A sodium determination after this time showed a level of 115 meq./l (normal 140 meq./l). Following administration of 3% sodium chloride, the renal func-

* Read at the Meeting of the Maine Chapter, American College of Surgeons, Belgrade Lakes, June 20, 1951.

tion returned promptly, and the patient recovered. Without the availability of such studies, the natural tendency might well be to continue treatment with water, since it would be felt that in the absence of renal function, sodium is retained in the body.

The question of potassium determinations in surgical patients arises primarily in the patient with intestinal obstruction or renal failure. In obstruction, with prolonged vomiting, large amounts of potassium are lost. When the serum level falls below 2.5 meq./l the danger zone for cardiac function is reached. Similarly in renal failure with retention of potassium, when the level goes above 7-7.5 meq./l, the cardiac mechanism is again endangered. These changes are quite readily recognized electrocardiographically.

Since the promulgation of Selye's "stress reaction," and the advent of adrenocorticotrophic substances, the effects of stress on electrolyte metabolism have become somewhat clearer. Under conditions of stress, such as a surgical procedure, or severe trauma, the kidney becomes virtually incapable of excreting sodium, and similarly incapable of retaining potassium. Accordingly, laboratory evidence of changes in the concentrations of these ions is invaluable in the postoperative care of many patients. The presence of the "stress reaction" can be recognized readily postoperatively by the simple measure of the eosinophile count. The immediate postsurgical state, lasting 4-8 hours, should show a markedly decreased number of eosinophiles in the circulatory blood, with a subsequent rise. The absence of this drop in count indicates probable adrenal cortical exhaustion, which often portends a poor postoperative course. It also should indicate somewhat greater than usual loss of sodium.

The value of chloride and carbon dioxide determinations needs no emphasizing. Their greatest individual value is in studies of acidosis and alkalosis.

However, a complete study of electrolytes sufficient to determine the balance of positive and negative ions requires these as well as sodium and potassium.

In a surgical patient on constant drainage, either from the stomach or small bowel, the possibilities for altered electrolyte balance are tremendous. The upper gastro-intestinal tract is relatively high in its concentration of potassium, and depletion of this element may occur in a relatively short time. The fact that gastric aspiration may drastically reduce the chloride concentration is well known. In such cases, actual determinations of the blood levels permits replacement with the proper amounts of the proper materials.

The total amount of blood necessary for sodium, potassium, chloride, carbon dioxide determinations is easily obtained. Four-five c.c. of serum is adequate, and can be removed from 10-12 c.c. of blood. For best results the blood should be drawn under oil, and without stasis.

In many instances changes in sodium, potassium and chloride balance may be recognized first by urine studies. In salt depletion the urine shows decreased sodium and chloride long before a change is manifested in the blood. The bedside and office method for chloride determination is a reasonably accurate procedure, and provides adequate information on which to base an opinion as to the state of sodium chloride balance.

It should then be obvious that with the recent advances in techniques, it is possible to follow surgical patients throughout their course with frequent determinations of factors involved in fluid and electrolyte balance. This procedure will undoubtedly prevent many of the unfavorable results of surgery, and, I believe, will permit surgery in certain patients who might otherwise be considered inoperable for medical reasons.

MEDICAL ASPECTS OF FLUID AND ELECTROLYTE BALANCE*

W. B. MANter, M. D., Bangor, Maine

Parenteral fluid therapy may be resolved to meeting the patient's needs for (1) water, (2) electrolytes and (3) nutrition. In the brief time allotted for consideration of the medical aspects of the subject, I have chosen to take up some very general and basic principles only. Since there is relatively infrequent need for meeting the full nutritional requirement for the usual surgical patient in the relatively brief time that intake is limited to the parenteral route, this part of the problem will be omitted.

The important problems created by the body reaction to stress, Selye's now popular general adaptation syndrome, whether it exists prior to surgery or not, will be passed off here as peculiarly surgical. At least this concept seems to explain the altered indications for fluid and electrolyte administration during surgery and in the immediate postoperative period.

Body fluids exist mainly in a dynamic equilibrium in two major compartments and make up 75% of the body weight. The larger compartment, the intracellular, normally contains 75% of the body water. The second, the extracellular, contains 25% and is sub-

* Read at the Meeting of the Maine Chapter, American College of Surgeons, Belgrade Lakes, June 20, 1951.

divided into the interstitial and the compartment into which we now commonly directly introduce our parenteral fluids, the intra-vascular compartment. It is pointed out that this last normally contains only 8% of the body water.

Samples from this relatively small intravascular compartment, blood, are used for the common laboratory determinations to help guide therapy. Incidentally, in addition to the concentration determinations, it is very probable that volume determinations, blood at least, should more commonly be used for the more seriously and chronically ill surgical patient.

Of the inorganic electrolytes in the body, it is the cation or base ions, mainly sodium and potassium, that are important in exerting osmotic pressure effects. Sufficient base to closely approximate a definite concentration (so-called "isotonic") must be present for water to be held within the body or within a particular compartment.

Limited cardiac or renal reserve provides the more common of the trying problems aside from the surgical problem itself. In general, it is safe to say that excess water is much more readily handled by such patients than excess sodium, and that pre-existent edema provides a good depot of electrolytes.

I shall here insert Butler's statement: "The prescription of the rate of infusion and the composition of parenteral fluids for a given patient must reflect common sense, careful clinical observation and a tolerance indicative of an enlightened awareness of ignorance."

Some further general considerations pertaining to the quantity and composition of parenteral fluids follow:

(a) *Body Water*

The usual daily loss of water for vaporization through the skin and lungs by an adult is about 500 c.c. In disease, especially with fever, this may increase to 2,000 c.c. or more. Abnormal losses, as by vomiting, diarrhea, through wounds, fistulas and tubes, and body water deficit or "dehydration" from previous losses, are to be estimated. A severely dehydrated 150 lb. person is said to have an average deficit of 4,000 c.c. of body fluid.

The water required by the kidney to eliminate waste products from the body is for the most part available only after these previously mentioned losses are met. A 1,500 c.c. daily urine output is desirable for the sick patient. Hence, the daily amount of water to be administered will be a quantity sufficient to meet the losses mentioned, plus 1,500 c.c. for urine excretion. With impaired renal function (except with "shutdown" as in lower nephron nephrosis syndrome), it is particularly important to attain this volume for urine excretion.

(b) *Sodium*

6.0 gm. of sodium chloride is sufficient to meet normal daily requirements and very likely is more than enough unless there is appreciable abnormal loss. Additional sodium may be needed to replace that contained in the abnormal fluid losses mentioned previously. Sweat is considered to be 0.2 to 0.5% sodium chloride. For practical purposes, other abnormal losses usually are considered as isotonic electrolyte solutions. Dehydration also represents loss of isotonic fluid. Such losses are usually so replaced with sodium chloride solution.

Discretion must be used in planning for the replacement of the electrolyte losses of severe dehydration; otherwise, the equilibrium of water and electrolytes that the body maintains in its compartments during the process of dehydration may be seriously upset with disaster resulting.

It is to be emphasized that especially with limited cardiac and renal reserve and whenever the body is under severe stress, an excess of sodium may be retained, and water with it. Whereas water should generally be administered in at least adequate quantities, sodium should be used in no more than necessary amounts.

(c) *Potassium*

Although the need for including potassium, the principal intracellular cation, in parenteral fluids is not frequent, I should like to spend time on it—perhaps out of proportion to its general clinical importance.

Its use incurs very real danger and presents complex problems. The normal serum concentration is very low relative to amounts that must be administered to be of value when the need for potassium exists. Serious toxic effects, including death, may occur if the serum concentration doubles the normal value.

Common causes for serious potassium deficit include large gastrointestinal fluid loss, prolonged parenteral feeding without potassium intake, diabetic acidosis, and the post-operative phase after extensive surgery. Oral intake of electrolyte-containing food or fluid must be concurrently interrupted for the syndrome to develop.

Awareness of the situations in which potassium deficit occurs is the most important factor in its recognition. The symptoms and signs that have been attributed to the disorder are such that they may be easily attributed to the effects of the underlying disease and they may be late in their appearance. Mental torpor, general weakness, nausea, vomiting, abdominal distention, dyspnea and cyanosis may occur. The electrocardiogram appears to be the most useful and practical single laboratory aid, both in regard to diag-

nosis and in guiding therapy, particularly as the serum potassium concentration may be normal in the presence of severe deficit; also without the flame photometer, the usual laboratory determination is a time-consuming process.

There is indirect laboratory evidence with the potassium-deficit state of so-called "refractory alkalosis" in that this syndrome is characterized by low serum chloride, high CO_2 and usually high N P N.

The oral route is the safest and by all means the preferred method of administration. By parenteral route, for an average adult, 4.5 gm. (60 meq.) of potassium chloride may be taken as a small basic daily therapeutic dose (and about half this as a prophylactic dose). The dangerous toxic effects are related to increased serum concentration and must be avoided. Since the kidney is the effector organ for serum concentration control, good renal output must be in progress before slow, dilute infusion is started. The total day's dose should be given over a minimum period of

four hours. Renal and adrenal insufficiency are contraindications to the use of potassium. Proper laboratory control must be available and utilized in all instances.

Toxic symptoms from increased serum concentration are mainly cardiovascular as tachycardia, irregular rhythm, peripheral vascular collapse and asystole. It is pertinent to point out that potassium intoxication may develop without potassium administration in the presence of renal failure, dehydration or shock. The development of potassium toxicity is very unlikely from therapy given to the carefully selected patient and properly controlled. If toxicity is suspected, the ECG again provides the quickest laboratory aid. Recommended measures include (a) glucose intravenously, perhaps with insulin, to help carry potassium temporarily out of the serum to the cells, and (b) measures as indicated to increase the volume of renal excretion.

HYPOKALEMIC ALKALOSIS*

LOUIS A. ASALI, M. D., Portland, Maine

A little learning is a dangerous thing,
Drink deep or taste not the Pierian Spring,
There shallow draughts intoxicate the brain
And drinking largely sobers us again—

Just as the dogs of Pavlov were conditioned to salivate at the sound of a bell, so has my mind been conditioned to recall the above quotation, whenever the term fluid balance is heard. Since my imbibing from the deluge of fluid balance reports which have inundated the literature during the past several months has resulted not only in an unpleasant intoxication of the brain, but also in a profuse diuresis of low specific gravity, or to speak in the vernacular, a steady stream with little solid material, a statement, the veracity of which, will not be doubted in the following discussion of hypokalemic alkalosis.

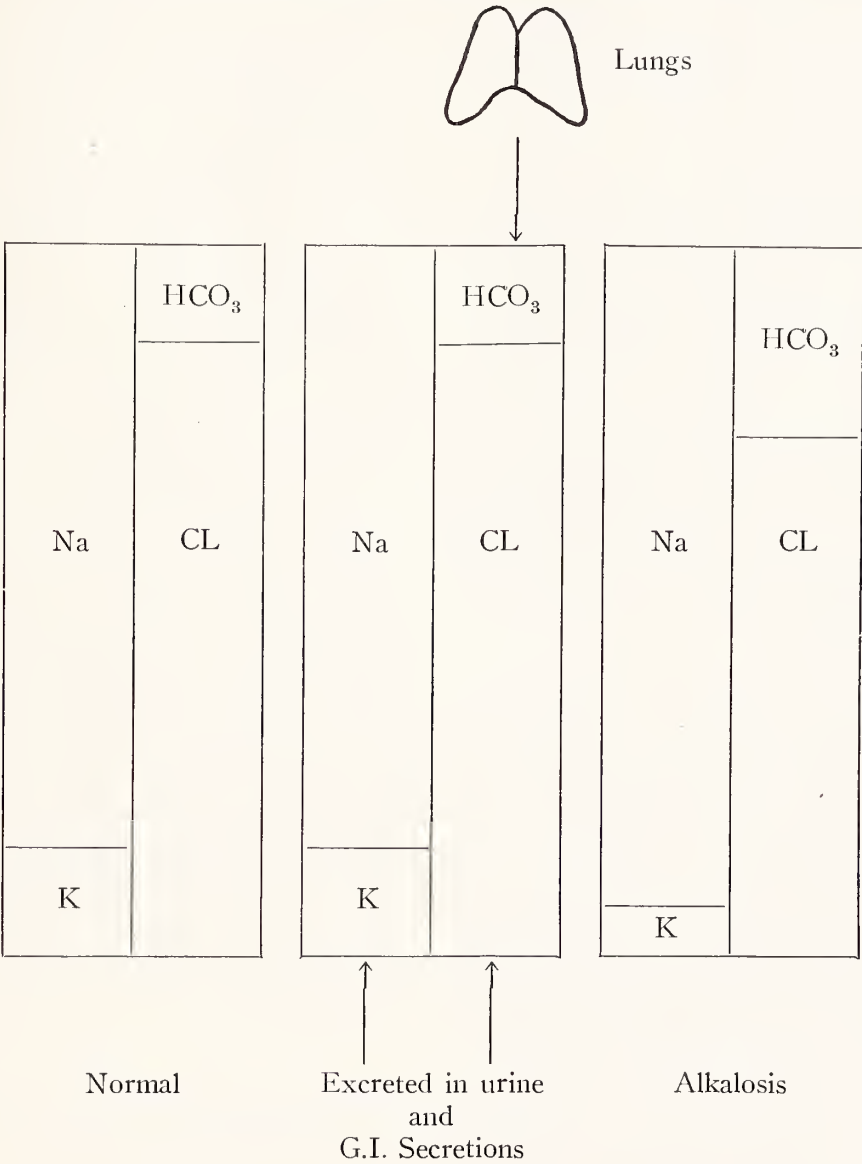
Clinicians have long recognized that a syndrome of apathy, lethargy, anorexia, weakness and abdominal distension plus hypochloremia and alkalosis, would often develop in certain patients after major surgical operations in spite of adequate glucose and saline therapy, and that both the symptoms and electrolyte changes would improve as soon as the patients

began to eat. No explanation for these poorly understood symptoms was offered until recent years, when Ariel and his co-workers reported a series of cases with elevated CO_2 combining power and lowered serum proteins in whom resumption of diet caused the CO_2 combining power to fall and serum chloride to rise, giving rise to the belief that patients with hypochloremic alkalosis had a deficiency of potassium, which could be corrected by diet. This belief was strengthened when Howard and Carey demonstrated that large amounts of sodium or ammonium chloride were ineffective in raising the serum chloride and lowering the CO_2 combining power when there was a deficiency of potassium.

Experiments by Darrow have shown that in rats made potassium-deficient, there was an excellent correlation between the degree of alkalosis and lowering of muscle potassium content and an increase in the muscle sodium content coincidental with the potassium loss. A simultaneous expansion of the sodium space and reduction of chlorides was also demonstrated, thus drawing attention to the close association of potassium depletion with hypochloremic resistant alkalosis, which many designate as hypokalemic alkalosis meaning low plasma potassium alkalosis and consider to be a tremendous exaggeration of altered cell membrane permeability.

* Read at the Meeting of the Maine Chapter, American College of Surgeons, Belgrade Lakes, June 20, 1951.

Change in electrolytes diagrammatically expressed



It is obvious from a review of the literature that many factors producing potassium loss can and do exist in the surgical patient, often operating simultaneously to produce potassium loss of considerable magnitude. Several of the factors producing potassium loss most frequently found in surgical patients, and a brief physiological explanation of the potassium loss in these factors will be discussed.

- 1. Starvation
- 2. Loss of gastro-intestinal secretions
- 3. Dehydration
- 4. Infusion Therapy
- 5. Adreno-cortical effect

STARVATION AND MALNUTRITION

Adults on a normal intake usually ingest 70 to 100 milliequivalents of potassium daily, none of which is stored but is excreted in the urine. Surgical patients

unable to tolerate oral feedings are deprived of the normal ingestion of potassium, while the kidneys continue to excrete potassium since the renal mechanism is designed to remove excess potassium rather than conserving potassium during deficiency. Cellular breakdown occurs with the liberation of potassium from the destroyed cells to the extracellular fluid for excretion by the kidney. Every gram of nitrogen broken down releases 2.4 grams of potassium.

LOSS OF G.I. SECRETIONS

Potassium is present in the gastro-intestinal secretions in high concentrations and normally nearly all is absorbed through the mucosa back into the blood. The concentration of potassium in the intestinal juices is usually 10 meq./liter, while the gastric juice may contain as high as 40 meq./liter. Potassium losses may be severe in prolonged diarrhea, vomiting,

or gastric suction, especially the latter two due to the high concentration of potassium in gastric juice, and also the loss of chlorides relative to sodium, compensated for by rise in extracellular bicarbonate leading to alkalosis.

DEHYDRATION

In dehydration there is loss of potassium from the cells along with intracellular water and replacement of potassium in the cells by sodium. Treatment of this dehydration by intravenous administration of potassium-free fluids results in further potassium loss from the cells with excretion in the urine and replacement of cellular potassium by extracellular sodium. Glycogenesis carries potassium from extracellular fluid into cells of glycogen-containing tissues such as liver and muscle. This rapid though temporary transfer is increased by glucose ingestion and, although not significant in normal persons, may produce serious symptoms by rapidly decreasing an already low serum potassium.

ADRENO-CORTICAL EFFECT

Surgical trauma causes increased production of ACTH by the pituitary, which stimulates the adrenal cortex to produce one or more hormones. This reaction, known as the alarm reaction, results in the increased excretion of potassium in the urine, and a retention of sodium relative to the chlorides, compensated for by a rise in the extracellular bicarbonates and development of alkalosis. Potassium losses of 300 meq. with sodium retention of 500 meq., have been reported following prolonged surgical procedures, attributed to adreno-cortical effect.

Having accepted the premise that hypokalemic alkalosis is always accompanied by low serum potassium, and with the knowledge that many potassium-losing factors may exist simultaneously in the surgical patient, it would appear mandatory that every major surgical patient be regarded as a prospective candidate for hypokalemic alkalosis, especially if prolonged abstinence from oral feedings is anticipated. If we are aware of this ever present complication and make use of several rough guides to amounts of potassium loss for certain surgical factors, judicious prophylactic potassium therapy may be used with safety to insure smoother post-operative course and lessen morbidity. These signboards of potassium loss are:

1. For every day of zero caloric intake, renal loss of potassium averages 50 meq.
2. Extra renal loss as from gastro-intestinal secretions averages 15 meq./liter.
3. Operative day loss through adreno-cortical effect averages 75 meq. potassium.

If the aggregate potassium loss of the above totals more than 150 meq., the prophylactic use of potas-

sium should be considered, 30 to 40 meq. of potassium chloride given slowly over periods of two hours providing the daily urinary output exceeds 250 c.c.

Excepting when serum potassium levels have been proved to be low by means of the flame photometer, the use of potassium is hazardous in cases of renal disease, also in the treatment of dehydration until rehydration is well established as evidenced by increasing urinary output and falling hematocrit.

Potassium should not be given for at least 24 hours following major surgery, as the large amounts of potassium liberated to the extra-cellular fluid may result in a dangerously high serum level especially if kidney function is depressed, and also in view of the complication of lower nephron nephrosis which may follow any surgical procedure.

In the therapeutics of hypokalemic alkalosis, frequent use of the flame photometer is essential, as the amount of potassium administered daily varies greatly dependent on the levels of serum potassium, sodium and chlorides. The average daily therapeutic amount of potassium ranges from 60 to 120 meq. and decreases as the serum potassium level rises. However, one must remember that the safest, most easily regulated and efficient prophylactic or therapeutic use of potassium is still by oral administration, either resumption of diet, or through oral administration of potassium solutions, such as one containing 4 grams each of potassium acetate, bicarbonate and citrate made to 100 c.c. water, 15 c.c. of this mixture four times daily in water or fruit juices furnishing 71 milliequivalents.

SUMMARY

Hypochloremic resistant alkalosis should be designated hypokalemic alkalosis, since it is always associated if not caused by potassium deficiency.

It is an ever present complication of major surgical procedures due to the multiplicity of potassium-losing factors co-existing in surgical patients.

Both the clinical symptoms and electrolyte imbalance respond to potassium therapy.

The physiology of potassium loss for several important factors is briefly discussed and amounts of potassium lost computed, as an aid in prophylaxis of potassium deficiency.

The therapeutic use of potassium, both parenteral and oral, is discussed, and precautions and contraindications of administration mentioned.

BIBLIOGRAPHY

1. Ariel, I., Abelo, J. C., Pack, G. T., and Rhoads, C. P.: Metabolic studies of patients with cancer of gastro-intestinal tract. XVI. Treatment of hypochloremia refractory to administration of sodium chloride, especially in patients with gastro-intestinal cancer. *J. A. M. A.*, 123: 28-30, 1943.

2. Howard, J. E., and Carey, R. A.: Use of potassium in therapy. *J. Clin. Endocrinol.*, 9:691-713, 1949.
3. Darrow, D. C., Schwartz, R., Iannucci, J. F., and Coville, F.: The relation of serum bicarbonate concentration to muscle composition. *J. Clin. Investigation*, 27:198, 1948.
4. Pearson, O. H., and Eliel, L. P.: Post-operative alkalosis and potassium deficiency. *J. Clin. Investigation*, 28:803, 1949.
5. Danowski, T. S., Peters, J. H., Rathbun, J. C., Quashnock, J. M., and Greenman, L.: Studies in diabetic acidosis and coma, with particular emphasis on the retention of administered potassium. *J. Clin. Investigation*, 28:1, 1949.
6. Moore, F. D.: Adaption of supportive treatment to needs of the surgical patient. *J. A. M. A.*, 141:646, 1949.
7. Tarail, R., and Elkinton, J. R.: Potassium deficiency and the role of the kidney in its production. *J. Clin. Investigation*, 28:99, 1949.
8. Elkinton, J. R., and Winkler, A. W.: Transfers of intracellular potassium in experimental dehydration. *J. Clin. Investigation*, 23:93, 1944.
9. Gass, H., Cherkasky, M., and Savitsky, N.: Potassium and periodic paralysis: A metabolic study and physiological considerations. *Medicine*, 27:105, 1948.
10. Randall, H. T., Habif, D. V., Lockwood, J. S., and Werner, S. C.: Potassium deficiency in surgical patients. *Surgery*, 26:341, 1949.
11. Hoffman, W. S.: Clinical physiology of potassium. *J. A. M. A.*, 144:1157, 1950.
12. Eliel, L. P., Pearson, O. H., and Rawson, R. W.: Post-operative potassium deficit and metabolic alkalosis. 243, 471-478, 1950; 243, 518-524, 1950.

SURGICAL PROBLEMS OF FLUID AND ELECTROLYTE BALANCE*

C. P. LAPE, M. D., Portland, Maine

Problems of fluid and electrolyte balance are increasingly coming to the attention of physicians, and to general surgeons almost more forcibly than to any other specialty group. Two reasons for this change are increased knowledge of chemical physiology and increased availability of such techniques as blood volume and serum potassium determinations. A third factor relates to the availability of adrenal hormones and appreciation of the frequency with which clinical problems are influenced by adrenal discharge. In particular, I refer to the so-called "alarm reaction." This is characterized by changes in renal excretion of sodium, potassium, and water. These changes are, therefore, usually seen after a major operation or acute illness.

The major ions of concern, with regard to acid-base equilibrium, are bicarbonate, chloride, sodium, and potassium.

The first abnormality of electrolyte pattern I should like to consider is salt depletion. Severe deficits of sodium and chloride are necessarily associated with loss of water, but the clinical effects of hypochloremia are more serious than, and not reproducible by, simple dehydration. The clinical symptoms, therefore, are not primarily due to water loss. They are encountered in three groups of patients. First are those persons with uncompensated losses of gastro-intestinal secretion. This, of course, refers to the diarrheas, obstructing lesions of the gastro-intestinal tract, prolonged vomiting, and intestinal fistulae, including ileostomy. Secondly, cardiac patients who have been carried on a low sodium diet may be thrown into clinical deficiency states by very minor increments in sodium loss. Even the diuresis which

follows parenteral fluid administration may be sufficient to precipitate deficiency symptoms. Thirdly, sudden loss of large amounts of electrolyte-containing fluid into the peritoneal cavity or from the skin surface may produce acute salt deficiency. I refer, of course, to acute peritonitis and extensive burns.

Both clinically and experimentally this condition causes, in proportion to the degree of salt lack, vertigo, orthostatic hypotension, nausea, occasionally vomiting, and if uncorrected, complete peripheral collapse. Depletion of sodium is furthermore thought to specifically impair smooth muscle contractility. Indeed, we have seen the clinical picture of severe ileus with marked abdominal distention wholly corrected by simple restoration of normal plasma chemistry.

The administration of both salt and water are required to improve this condition. Although dehydration exists, the administration of solutions of glucose in distilled water will only increase the dehydration. This apparent paradox reflects the body's inability to retain water when it lacks electrolyte with which to make this water isotonic. Dehydration is increased by salt-free fluid since urinary loss of water carries with it a slight but significant amount of solute, in spite of the already existing deficiency. The intravenous use of hypertonic saline solution, usually 2% NaCl, is recommended. Adequate quantities of normal saline will suffice if the total urinary output is large enough to carry off excess body water.

An abnormal increase in body sodium is also to be guarded against. Retention of excess sodium within the body increases the osmotic pressure of body fluids and abnormal amounts of water are thereby retained until dilution of this sodium has restored normal osmotic pressure. The chief expansion occurs in the extracellular compartment and peripheral or pulmonary edema may result. There is little danger of

* Read at the Charter Meeting of the Maine Chapter, American College of Surgeons, Belgrade Lakes, Maine, June 20, 1951.

this phenomenon in a normal human because of the marvelous regulatory function of the kidneys. After a major operation, however, the kidneys are temporarily unable to excrete large amounts of sodium. Thus, even young patients in good general nutrition may be overloaded if saline administration is too generous in the early post-operative period. Edema of the lungs or of a newly constructed anastomotic stoma may be disastrous. Some surgeons routinely restrict sodium administration to one liter of saline per day following major operations. Even this represents an intake of nine grams of salt, about 40% of which is usually retained in the early post-operative period unless the renal excretion of sodium is supplemented by losses through gastro-intestinal suction. It has been shown that this post-operative suppression of salt excretion is not due to anesthesia or dehydration. It is accompanied by an increased urinary loss of potassium, inversely follows the eosinophil count, and is probably an effect of adrenal stimulation and discharge.

Determination of urinary chloride concentration has been recommended as an indication of the level of total body chloride, since it was assumed that a low urine concentration indicated a renal effort to conserve chloride. As we have just indicated, however, adrenal stimulation may block the kidneys' ability to excrete sodium and chloride, even if a surplus is present. One cannot, therefore, interpret a low urine chloride as a "go-ahead" for the administration of saline solutions. The kidney is a marvelous adjuster but it does not have a brain of its own.

Until recently disorders of potassium balance were thought to be of little clinical significance except in periodic familial paralysis and in diarrheas of infancy. Actually there are very few bodily disorders that do not produce some change in potassium metabolism and severe disturbances of potassium concentration often produce symptoms wrongly attributed to the antecedent disease. Potassium is thought to exist largely within the cells. The average total body potassium is estimated at 175 grams, of which only three grams are within the extracellular fluid. The average daily dietary intake is three to four grams and the intestinal tract secretes one to two grams a day. Nearly all of this is normally absorbed or reabsorbed into the body. The plasma concentration of potassium is normally maintained between 3.8 and 4.6 meq./l.

Lowered potassium concentration brings about weakness of both smooth and skeletal muscle and produces changes in myocardial physiology. Thus, ileus with abdominal distention, weakness and difficulty in phonation, and abnormal electrocardiographic tracings are clinically associated with this syndrome.

Increased serum potassium concentration also interferes with normal muscle physiology and many of

the same symptoms may be produced by this opposite chemical derangement. If serum concentrations of 10 meq./l are approached, severe bradycardia with cardiac standstill and death may result.

It would seem that the key to the understanding of potassium metabolism lies in the basic facts of its renal excretion. It is not a threshold substance, which is to say that the kidney cannot make potassium-free urine, even if the body needs all of its potassium stores. If the volume of urine output is normal, there is a minimum daily loss of about 20 meq. of potassium. Furthermore, this daily loss is increased by a variety of causes including starvation, dehydration, the "alarm reaction," and even the administration of intravenous fluids. (This is particularly true of solutions which contain sodium but not potassium.) These factors cause increased renal excretion even though there may be a need for conservation of body potassium. The factors which increase potassium loss are frequent in the course of operations and surgical illnesses, and oral intake of food in these situations is often insufficient to compensate for increased loss. Low potassium states are, therefore, often seen in surgical patients.

There is, on the other hand, virtually no ceiling to the amount of potassium a normally functioning kidney can excrete. It is also true that the normal kidney can excrete potassium as fast as a normal intestinal tract can absorb it. It is for this reason that dangerous increments in plasma concentration are almost never seen after oral administration of potassium salts.

The treatment of low potassium states should usually include the administration of potassium salts or potassium-containing foods if this is possible. Potassium chloride is available commercially in 5 c.c. ampules containing 40 meq. of potassium. This amount may be added to a liter of any standard intravenous solution but at least two hours should be spent in its administration to avoid sudden increases in local plasma potassium concentration, — particularly within the coronary vessels. If oral alimentation is possible, this is a safer and cheaper route. Fruit juices are an excellent source of potassium; a tumbler of tomato juice contains about 75 meq. of available potassium.

Potassium intoxication is seldom seen except in the course of over-enthusiastic potassium therapy or in the presence of acute renal insufficiency. In surgical patients the condition is most often brought about by a complicating lower nephron nephrosis. Treatment is chiefly directed toward driving extracellular potassium back into the cells of the body until spontaneous renal excretion, or dialysis on the artificial kidney, may take place. The administration of glucose, insulin, and testosterone, and the withholding of sodium-containing fluids all tend to accomplish this end.

An effort should also be made to meet the basal caloric needs with potassium-free food stuffs, either intravenously or orally. Breakdown of body protein is thus retarded, and the endogenous release of still more potassium into the extracellular fluid of the body inhibited.

In concluding, I do not have to emphasize that the problems of fluid and electrolyte physiology are complex. The reciprocal interrelationships between sodium, potassium, magnesium, and other body chemicals are bewildering. At times it seems that each new discovery asks more questions than it answers. But we cannot afford to throw our hands up in confusion and rely on rules of thumb; the cost of untreated chemical derangements may be supreme, and much can be accomplished with even the imperfect knowledge of today.

BIBLIOGRAPHY

Perkins, J. G., Peterson, A. B., and Riley, J. A.: Renal and Cardiac Lesions in Potassium Deficiency due to Chronic Diarrhea. *Am. J. Med.*, 8:115-123, Jan., 1950.

Dorow, D. C., and Pratt, E. L.: Fluid Therapy; relation to

tissue composition and expenditure of water and electrolyte. Council on Foods and Nutrition. *J. A. M. A.*, 143: 365-373, 432-439, 1950.

Randall, H. T., Habif, D. V., Lockwood, J. S., and Werner, S. C.: Potassium Deficiency in Surgical Patients. *Surgery*, 26:341-363, Sept., 1949.

Ariel, I. M.: The Internal Balance of Plasma Protein in Surgical Patients. *Surg. Gyn. and Obst.*, 92:405-413, April, 1951.

Ariel, I. M., and Kremen, A.: The Compartmental Distribution of Sodium Chloride in Surgical Patients Preoperatively and Postoperatively. *Am. Surg.*, 132:1009-1026, 1950.

Schilling, J. A., McCoord, A. B., and Clausen, S. W.: Potassium Loss in Experimental Intestinal Obstruction. *Surg. Gyn. and Obst.*, 92:1-14, Jan., 1951.

Nadler, C. S., Bellet, S., Gazes, P. C., and Steiger, W. A.: Administration of Potassium to Patients with Prolonged Vomiting and Diabetic Acidosis. *Jr. of Lab. and Clin. Med.*, 35:842-853, June, 1950.

Gardner, L. I., Talbot, M. B., Cook, C. D., Berman, H., and Uribe, R. C.: Effect of Potassium Deficiency on Carbohydrate Metabolism. *Jr. of Lab. and Clin. Med.*, 35:592-602, Apr., 1950.

Ariel, I. M., and Miller, F.: The Effects of Hypochloremia upon Renal Function in Surgical Patients. *Surgery*, 28: 552-567, Sept., 1950.

Danowski, T. S.: Newer Concepts of Role of Potassium in Disease. *Am. Jr. Med.*, 7:525-531, Oct., 1949.

OBSTETRIC HELPS*

C. O. McCORMICK, M. D., Indianapolis, Indiana

I shall endeavor not to take undue advantage of the implied comprehensiveness of my subject, but will stress briefly a goodly number of what I consider practical aids in the all-important field of obstetrics. Much of what I shall have to say will not border on the scientific, and no doubt will be rated as quite commonplace. Nevertheless, I hope each of you, who serves in the field of parturition, will find at least a few pointers you will want to carry back to your practice.

I shall begin with the statement, "Every female child should be considered a potential mother." The obstetrical millennium will not come to pass until this worthy consideration is extended her; and this not only by the profession alone, but by society at large. She is to be protected to the fullest extent by all health measures, including ample intake of vitamins A, C, and D; elimination of focal infections; and protection against those infectious diseases that reflect unfavorably during the child-bearing period.

In that rebella contracted during pregnancy, particularly during the first three months, is associated with a high incidence of fetal malformations, the female child, at least until a reliable vaccine is developed, should be designedly exposed to that contagion.

There seems to be little grounds for the routine termination of such pregnancies as advocated by some. The United States incident rate of the first trimester, 27 per cent, has never run as high as the corresponding rate, 90 per cent, reported from one of the original Australian series. Personally, I question whether termination is ever justified in that orthodox medicine, even in its modern phase, has never gone all out for eugenics to the extent of advocating destruction of the unborn. Besides, the rationality of such policy is openly questionable, when in order to achieve its purpose, it involves the frank certainty of destruction of fetuses normally formed.

The teaching of sex hygiene in our public schools should be replaced by the more important goal, *healthy parenthood*; the former to be emphasized only as a means to that end. Every individual has a natural desire to become a healthy parent, and we should give all possible assistance to that desire. The physiology and some pathology of human reproduction should be included in the senior high school curriculum. This would lead to an increased general interest in prenatal and parturitional care. Besides, it is all wrong to prepare a girl for life by overemphasizing preparation for a classic career at the expense of a basic understanding of that most vital function for which she was primarily created, namely, repro-

* Presented at the 96th Annual Session of the Maine Medical Association, 1950.

duction. Her physical design and certain correlated functions all but scream out the priority of that function.

Preconception examination should be routine. The increasing number of women, particularly those contemplating marriage, who come to their physician seeking such an examination, is quite convincing that we are living in a better day.

PRENATAL CARE

Prenatal examination should be thorough and adequate, and should include the following:

1. A relevant family and past personal history.
2. Examination of teeth, tonsils, heart and lungs.
3. Checking of blood pressure and urine.
4. A careful taking of the pelvic measurements.
5. Checking the Wassermann, Rh factor, and hemoglobin.

Since most patients consider pelvic measurements the most important part of a prenatal examination, for the sake of their mental satisfaction it is good policy to take these measurements at the first visit.

Outlet pelvimetry is more important than *inlet pelvimetry*. It is at the outlet that most delivery difficulties arise; most labors are arrested; over 90 per cent of forcep operations are indicated; most permanent and fatal injuries to the infant occur — especially at breech births; and the mother suffers practically all of her immediate and most of her permanent birth damages.

The least an attendant can do is to estimate the bis-ischial diameter by passing his gloved fist transversely between the tuberosities. An outlet admitting an 8 cm. fist will permit the birth of a seven-pound baby.

External inlet measurements are indirect, inaccurate, and of little value except to classify the type of pelvis, and are soon to be omitted from some leading standard textbooks.

The only real pelvimeter, the baby's head, can be readily applied to the inlet either manually or by test of labor, but not to the outlet until late in labor, which may be too late.

X-ray pelvimetry is well indicated in all cases where the architecture of a pelvis is questionable as to diameters and available capacity.

Erythroblastosis kills more babies than does syphilis, and for that reason checking of the Rh is more important than the taking of the Wassermann.

Although one of the most important and intriguing discoveries in the last half-century, the Rh factor is frequently very disturbing to many expectant parents. Those parents, where the father is Rh positive and the mother Rh negative, should be informed that the first baby is very, very rarely affected, and that no more than one Rh negative mother in 30 will have

an erythroblastotic baby in any pregnancy, and that in general 50 per cent of the affected babies live. However, all of these babies are not good babies.

The only treatment for the infant is blood transfusion. The best results are obtained with compatible Rh negative female blood — not the mother's blood. All erythroblastotic babies from the Rh factor should be transfused immediately after birth, preferably by the replacement method. A much lower incidence of mental retardation and brain damage follows from this technic than from the simple method. The degree of cerebral damage does not depend upon the degree of the erythroblastic manifestations.

Rh antibody titrations of Rh negative expectant mothers should be routine.

Erythroblastosis *per se* is not an indication for induction of premature labor or Caesarean section. Neither does the Rh-negative factor indicate therapeutic abortion or sterilization. If the husband is homozygous, barring legal complications, insemination may be justified.

All females below the menopause age, adults, children, and infants, should have a serologic check on the Rh factor that they may be forewarned and protected against a transfusion with Rh-positive blood, and have their child bearing possibly foiled, and perhaps their own life jeopardized.

An Rh-negative donor list should be established at all hospitals.

Twelve per cent of all pregnancy patients are anemic. The hemoglobin (or better still, the hematocrit), should be checked at the first visit, at six months, at term, and six weeks postpartum:

A hemoglobin of 9 mg. or hematocrit of 30 per cent warrants a blood transfusion.

The prenatal patient should be seen at least every 4 weeks up to the end of the sixth month, every two weeks during the seventh and eighth months, and every week during the last or ninth month.

The *blood pressure* and *urine* examinations should be taken and carefully recorded at each visit.

The blood pressure apparatus is the most important of all prenatal equipment. Its usefulness is not limited only to hypertension complications, but is equally valuable in handling cases of cardiac disease. Regardless of what and how many murmurs a heart may present, we are not specially disturbed so long as the pressure is maintained at 120 over 80. However, we do lend closer vigilance.

A diagnosis of nephritis or toxemia during pregnancy or the puerperium should not be made solely on the basis of albumin present in a voided specimen. This custom often extends unnecessary anxiety and needless therapy to the patient.

Likewise, the attendant upon finding sugar in the urine should not upset the tranquility of the patient

and her family by informing her she has diabetes in addition to her pregnancy, at least not until he has ruled out lactosuria or has taken repeated fasting blood sugars. We must not forget that glycosuria in the early weeks of pregnancy is usually physiologic.

In supervising the prenatal patient the possibility of toxemia and placenta previa should be kept ever in mind—particularly during the last trimester. The mortalities from these two complications can be most effectively combated, not at the time of delivery, but during the prenatal period. Indeed, they afford the greatest excuse for prenatal supervision.

As a prenatal patient sits before her physician in his office, it should occur to him, "Madam, you are a candidate for two possible catastrophies, eclampsia and placenta previa." With this in mind, he is duty bound to question her at each visit as follows, "Mrs. Jones, since your last visit, have you had any nausea or vomiting?" "Have you had any dizziness?" "Have you had any vertex headache?" "Have you had any insomnia or sleeplessness?" "Have you had any blurred vision?" "Have you had any morning swelling of the face?" "Have you had any epigastric or upper abdominal pain?" "Have you had any spotting of blood or bleeding from the vagina?" Not until he has a negative answer to each of these questions, and has found the blood pressure and urine to be normal, has he exhausted his responsibility to the patient, nor can he say, even to himself, "Mrs. Jones, you are in no immediate danger."

May we interject: *Evening edema of the lower extremities is usually physiologic, while morning edema of the face is usually pathologic.*

A normal systolic pressure rising to 140 or 160 mm., with or without albuminuria or subjective symptoms, means *hospitalization*. A rising and sustained diastolic is equally, if not more, significant; and the younger the patient, the greater the significance. Likewise, there should be hospitalization of all cases of painless, causeless bleeding in the last trimester. There should be no rectals, vaginals, or packing in the home. If a blood bank is not available, donors should be taken along, or better, they should be sent on ahead that they may have their blood typed and checked for the Rh as soon as possible.

The *diet of the prenatal patient* should not be restricted except when an abnormal weight gain is constant, or some systemic complication arises. We are all familiar with the expression, "Doctor, I eat like a horse." Particularly do we hear this during the second trimester. This sudden increased demand for food, as experienced by the majority of patients, leads one to believe that Nature in a protective mood is trying to overcome some heretofore bodily deficiencies. Accordingly, I let my patients eat, knowing that the size of the baby will not be effected; that eating is one of the few pleasures of the expectant mother;

and that in the majority of cases the demanding appetite will have only a temporary "run." A persistent abnormal weight gain can usually be controlled by substituting calcium-phosphorous tablets for milk. Thyroid extract and limited salt intake are often indicated and helpful. The possibility of developing a toxemia must be kept in mind.

The annoying and frequently very distressing symptom of *hyperemesis gravidarum* is often treated too casually and inconsiderately by the attendant.

At the very certain risk of being criticized as ultra passé, I, from my experience of more than two and one-half decades, empirically recommend so common a drug as luminal sodium, given intramuscularly in the gluteal muscle of a dosage from 2 to 5 grs. The average case requires but a single administration every 2 to 7 days. The preparation is put up in powder form in ampules by the Winthrop Chemical Company. Down through the years I have run the gamut of using the various hormones and vitamins, and more recently the combination of pyridoxine and suprarenal cortex. In our hands, especially in ambulatory cases, none have given the satisfactory results as luminal sodium. However, we have found a close competitor in intravenous vitamin, Betalin S (Lilly), in one c.c. doses at several day intervals.

Another gratifying service to the expectant mother, especially after the sixth month, is the *maternity corset*, which in a true sense is an abdominal support. Were the husband to have an abdominal tumor of a similar size, he would quickly welcome such a garment.

A properly-fitted maternity corset reduces the incidence of striae gravidarum, relieves the fatigue of the erector spinae muscles, lessens the discomfort of the softened sacro-iliac and symphysis joints, improves the body lines for dress appearance, and eliminates the need for the undesirable feature of round garters or rolling of the stockings.

In our practice we have found it most practical to have the garment fitted in our office by our experienced nurse. We also do the subsequent adjustments.

A *layette pamphlet*, given to the patient at her first visit, is an appreciated service, especially by the primiparous patient. The pamphlet, in addition to listing layette articles and naming the various stores from which they can be purchased, should include information and instructions for the mother as to her diet, clothing, exercise, personal hygiene, abnormal symptoms, schedule for routine visits, the doctor's office hours and phone numbers, and signs of beginning labor. The number of "don'ts" should be limited.

It is, also, helpful to include a separate list of articles such as nursing bottles, nipples, baby powder, hot water bottle, bath thermometer, etc.; all to be

available in one package at some local drug store. The package, which may be ordered as the "Infant Package," eliminates considerable petty shopping on the part of the patient.

Another minor, but very practical service, is supplying each patient with an appointment slip or folder, indicating the date and hour of the next appointment. This eliminates much forgetfulness on the part of the patient, keeps appointments running more smoothly, and eliminates much unnecessary phoning by the receptionist.

Being ever alert for breech presentation, transverse-*lie*, and multiple pregnancy, the competent attendant will practice careful abdominal palpation at every visit after the seventh month. In all cases of either of these suspected diagnoses, he will seek the aid of the X-ray. In the case of breech it will confirm the diagnosis, identify the variety of the presentation, disclose deflection attitudes, and reveal the occasional unsuspected and frequently associated pelvic contraction.

A virtual proof of breech presentation can be achieved by applying *Mengert's Maneuver*. This is performed by steadying the breech with one hand while slowly, firmly, and steadily compressing the fetal head with the fingers and thumb of the other. The resulting pressure produces a marked slowing of the fetal heart rate from 140 to less than 100 beats per minute. A similar pressure to the breech produces no alteration in the fetal heart rate.

Since the fetal mortality of the breech presentation is three to five times that of the cephalic, and that of the neglected transverse-*lie* is 100 per cent, it is quite mandatory these two mal-presentations be promptly corrected. With all conditions favorable, this is accomplished by external version, and is done with greater ease and more success from the thirtieth to the thirty-sixth week. The later in pregnancy the operation is performed, the greater is the need for anesthesia, preferably surgically deep ether, and the greater the number of failures.

Efficient prenatal care is as important as efficient delivery care.

All labor cases should be hospitalized. If it is important that father go to the hospital to have his tonsils removed, and it is, then it is more important that mother go to the hospital to give birth to his offspring. By all means this applies to all previous section cases, breech, transverse-*lie*, and chin posterior presentations; and those cases of placenta previa, abruptio placentae, and contracted or borderline pelvis; and cases complicated by cardiac, pulmonary, and nephritic diseases.

CONDUCT OF LABOR

Analgesia in labor is here to stay, and anyone attempting the practice of obstetrics in a modern com-

munity, should first be well trained in the use of one or more of the present-day methods.

A most important feature in the conduct of labor is *checking and recording the fetal heart rate at regular intervals*—every 30 minutes during the first stage; every 15 minutes during the second stage; and oftener as the moment of birth approaches.

The more closely this routine is observed, the greater is the number of salvaged babies.

Let us be ever reminded that the obstetrical patient differs from the medical or surgical case in that it extends us the responsibility for two individuals, and that the stethoscope is our chief aid in checking the well-being of the one unseen.

Pelvic examinations should be made rectally. However, in the case of delayed progress in labor, or some irregular presenting part is discerned by rectal, or when determining the diagnosis of placenta previa, then, by all means, should the vaginal be utilized.

CONDUCT OF DELIVERY

1. *For the sake of asepsis*, the patient should not be taken to the delivery room longer than one-half hour before the expected time of delivery. A much longer period is quite certain to lead to contamination. It is difficult to prevent perspiration, amniotic and fecal fluids from conveying in time bacteria through the draping materials—as well as the problem of keeping the drapes from becoming awry. Likewise, there is the likelihood of contamination of the instruments from prolonged exposure; and, also, the difficulty of controlling of non-sterile contacts by the assistants, when subjected to tiresome waiting.

In such instances redraping and replacing of gowns and gloves should be a usual routine. In other words, the spirit of Semmelweis should ever prevail.

2. In general, one should follow the slogan, "*If a perineum exists, an episiotomy should be done.*" Unless apt at repairing third-degree lacerations, one should go slow in adopting the routine median. It is better to guide the baby beside the rectum than through it.

An outstanding goal of every delivery is an intact sphincter and a nulliparous introitus. A timely episiotomy and a proper repair will guarantee both. *In repairing a perineum, one should always preserve its expression.*

3. When delivering a premature infant one should adhere closely to the dictum, "*The more premature the infant, the more generous the episiotomy.*" It is here an episiotomy is often a life-saving measure. Fully 50 per cent of all premature infant deaths are due to intracranial hemorrhage. This results from injury to the frail blood vessels born by the delicate brain-supporting structures, and is in direct proportion to the degree of moulding.

4. In repairing episiotomies and perineal laceration, one should avoid *too many, too tight, too hard, and too haphazardly placed sutures*. When the patient's limbs are taken down from the leg-holders, all the perineal structures that have been injured fall into normal relation, and all that is necessary in their repair is to gently coapt their respective margins for the brief period of ten days. By that time Nature will have taken over.

5. Conditions being favorable as to skill and surroundings, the *prophylactic forceps* is an operation strongly recommended. It spares the mother the most exhausting hours of her labor, and the infant, prolonged cerebral compression.

6. In the conduct of the third stage the blood loss should be checked as much as possible. *It is simpler to conserve blood than it is to transfuse it*. It is here we depend much upon the use of oxytocics. Either of the following methods is highly practical:

- (a) Five-tenths to 1.0 c.c. of pituitrin is given hypodermically following the birth of the baby, and one ampule of ergotrate (gr. 1/320) hypodermically after the birth of the placenta.
- (b) The Chicago Lying-in technic. After a delay of 30 seconds following the birth of the head and the assured birth of the shoulders, 1 c.c. of ergotrate (gr. 1/320) is administered intravenously.

We prefer and routinely employ this latter method. In practically all instances the blood loss from the uterus is less than that from the episiotomy. We further find it eliminates the need for the administration of some ergot preparation during the first two or three postpartum days as customarily done for the prevention of subinvolution of the uterus. It thus reduces both medication to the patient and service by the nurse.

(The ice-bag to the fundus has rightfully, long since become passé. Not only is its efficiency questionable, but it serves as an added chore to both the nurse and the patient. Besides, 18 (??) per cent of the bags leak.)

The long standing, dogmatic dictum, "Pituitrin is a criminal agent if administered before the birth of the child," has until recently held us in abeyance in developing the fullest utilization of this oxytocic. However, as with the mastering of strychnine as a useful drug, we have developed its administration and regulated its dosage to a degree that it is now not only a safe, but a most important aid in handling such problems as postpartum hemorrhage, induction of labor, inertia uteri, and abruptio placentae.

The *intravenous drip technic* is more physiologic than the intramuscular and intranasal methods, and for that reason is safer and more efficient. Since

pitocin, perhaps not quite as efficacious as pituitrin, reduces pituitary shock and eliminates the danger of the blood pressure elevation in unrecognized pre-eclamptic patients, it is the better choice of the two preparations.

Technic of Intravenous Pitocin Drip for the induction of labor and treatment of inertia uteri:

(1) Mix 5.0 m. of pitocin thoroughly with 500 c.c. 5 per cent glucose solution. (50 c.c. of solution is equivalent to 0.5 m. of pitocin.)

(2) For the first half hour administer with a pre-tested Murphy drip apparatus 0.25 m. of pitocin — 12 to 14 drops of the solution per minute—.8 c.c. of solution.

(3) After the first half hour, if .25 m. is not effective, increase to 0.5 m. of pitocin over 30 minutes —25 to 30 drops of the solution—1.7 c.c. of solution.

Precautions:

(1) Do not have the solution flowing when the needle is inserted—a dangerous amount of the pitocin might be given before the flow is regulated. The number of drops should be built up from zero.

(2) The patient should never be left alone. The flow must be checked from time to time. Moreover, the clamp might slip.

This accident can be avoided by employing the Harvard clamp (manufactured by the Harvard Appliance Company, Dover, Massachusetts).

(3) The uterine contractions must be observed constantly. If they exceed 2 minutes or if the fetal heart tones show abnormal variation, the clamp must be shut off immediately and remain shut until the disturbances are corrected. In the meantime a normal salt solution by means of a Y-tube may be switched for the pitocin solution.

These precautions must be observed unrelentingly. A pituitary oxytocic unscrupulously administered intravenously can be "dynamite."

PUERPERAL CARE OF MOTHER

1. The greatest use of *pitocin drip* is the treatment of postpartum hemorrhage. Eastman of Johns Hopkins reports he has successfully substituted it for the intrauterine packing in treating uterine hemorrhage in their last 12,000 delivery cases. In dealing with this complication, the rate of flow may be increased to 60 or 70 drops per minute if indicated.

It appears pitocin drip is destined to replace the intramuscular use of pitocin and pituitrin, as it can be advantageously employed, also, in incomplete and septic abortions, some cases of hydatiform mole, certain cases of abruptio placentae, and following the birth of the baby at Caesarean section.

2. An abdominal binder for the first two or three

postpartum days is gratefully accepted by the patient. This is ordered for her *comfort* only, and not as a prophylactic against hemorrhage or as an aid for figure restoration. The uterus following delivery weighs 2 pounds, and its supporting structures are extraordinarily lax, and the abdominal wall extremely flacid. The supporting effect of the binder gives real comfort.

3. The patient is entitled to and will tolerate a *regular diet* as soon as she has recovered from her anaesthetic. Her many hours of exhaustive labor should extend her the same consideration given the gridiron star, whose meal following one hour of many times less physical expenditure includes a one-inch steak. Her digestive tract and forces have not been disturbed, and it would appear to be an injustice to limit her to a sloppy and soft food diet the first 24 to 48 hours after delivery, a routine frequently observed.

4. Most patients can be relieved of perineal pain by removing the vulvar pad and applying an ice-collar covered with a sterile towel. Heat from a light bulb, also, serves well.

5. The *engorgement of breasts* is readily relieved by oral stilbestrol—1 to 2 mg. taken t.i.d. for 2 or 3 days. If it is desired to dry up the breasts, the dosage is increased to 5 to 10 mg. t.i.d. for 3 or 4 days.

A properly applied *adhesive support, not binder*, can also be used in the treatment of engorgement. It gives complete relief, and has the advantages over the soft material supports of being completely efficient, not having to be changed at nursing time, being more comfortable, and allowing easy access to the nipples for nursing.

6. The patient can profit greatly by exercises during the puerperium, and some such routine as the following should be prescribed:

- a. First day and after lie on stomach $\frac{1}{2}$ hour or longer t.i.d. This replaces the awkward and embarrassing knee-chest position.
- b. Second day and after raise one foot then the other with the knee straight toward the ceiling 10 to 12 times night and morning. Sit on the edge of the bed and dangle feet 5 to 10 minutes 2 or 3 times daily.
- c. Third day and after with arms folded high across the chest, rise rapidly to upright sitting position and recline slowly 10 to 12 times night and morning following limb exercise, "b."

The patient should continue lying some on stomach during the day or during sleep, and the sitting-up exercise, "c," for one month after leaving the hospital.

7. As we retrospect through the years there arises an inner penance for the disservice we rendered our loyal patients who so faithfully accepted our orders

to remain in bed 10, 12, 14 or more postpartum days. This late rising delayed their convalescence, and often so because of unnecessary complications resulting therefrom.

Early rising is now commonly conceded to have the following advantages:

- a. An increased sense of physical well-being and a better psychological attitude.
- b. A reduced incidence in such complications as cystitis, respiratory infections, thrombophlebitis, and pulmonary embolism.
- c. A more rapid involution of the uterus.
- d. An economic saving because of a briefer hospital stay, and
- e. A shorter convalescence period.

Routines of early rising vary in different clinics. Ours is as follows:

- a. Second day: Up in chair 15 minutes 2 times.
- b. Third day: About room 30 minutes 2 to 3 times.
- c. Fourth day: Up and down corridor, and to toilet.
- d. Fifth day: Shower bath.
- e. Sixth day: Privilege of washing hair.

The daily exercises listed above are conducted in conjunction with these early rising privileges.

Although early rising may enable a patient to leave the hospital as early as the 5th day, it is preferable that she not do so before the 8th or 10th day. She is well entitled to the extra days of hospital rest.

CARE OF THE INFANT DURING THE PUERPERIUM

1. The first service to the infant is thorough aspiration of its nasal and bronchial passages. This is to be done before any stimulation of respiration. The nares and mouth can be aspirated with a 4-ounce soft rubber ear syringe as soon as the head is born. Immediately following the cutting and ligating the cord, the trachea should be freed of mucous with a soft rubber catheter.

Aspiration of Caesarean born babies should be routine, since it has been found their bronchial tree contains on the average, 6 to 8 c.c. of mucous, which is three times the average found in babies born per vaginam. No doubt this fact accounts for many of the unexplained deaths that occur shortly after birth among babies delivered by section.

All apneic babies are to be given oxygen.

2. The care of the infant in the majority of cases, at least until the pediatrician or family physician takes over, becomes the responsibility of the obstetric attendant.

We put the baby to the breast 12 hours after birth. This is done chiefly to give the mother the pleasure

of seeing the baby. During the next 24 hours it is taken to the breast every 6 hours. Babies weighing 7 lbs. and over are then put on the 4 hours' schedule (both breasts at each nursing), omitting the 2 a. m. feeding. The baby readily adapts itself to this schedule, and spares the mother the chore of nursing at 2 a. m. after she leaves the hospital.

Babies weighing $5\frac{1}{2}$ to 7 lbs. are placed on a 3-hour schedule during the day and 4-hour at night, nursing on but one breast at each feeding.

Premature and immature infants (less than $5\frac{1}{2}$ lbs.) are given incubator care, and are not given water, food or a bath the first 24 hours.

3. We believe a supplementary feeding until the breast milk is established is well indicated. It prevents inanition fever, reduces the so-called physiologic birth weight loss, and affords the mother considerable peace of mind.

Our favorite formula, a simple and practical one, is the following:

Evaporated milk	IV
Karo syrup	ss
Boiled Water	VIII

Sig: $\frac{5}{8}$ I-II P.C. until breast milk is established.

4. *Circumcision.* Too many babies are needlessly circumcized, and there are two common errors in the usual technic: the removal of too much foreskin, and unnecessary suturing.

Nature intended the glans be completely covered. Therefore, we should strive to have it at least two-thirds or three-fourths covered. The cornification of the epithelial covering of the exposed glans, which results from the glans rubbing against the trouser flap during the many years of growing manhood, sometimes hampers the pleasure of the marital act in later life. Also, ulceration of the meatus and its resulting stricture are reported to be predominately found among circumcized children.

Hemostasis is the only indication for sutures, and they are rarely found necessary. The clamp method greatly eliminates their need.

An excellent *circumcision dressing* is a rolled five or six-inch piece of surgical gauze three-fourths of an inch wide, autoclaved in albolene. The dressing is applied by wrapping it firmly about the penis, and it is not disturbed until it is ready to drop off about the third or fourth day. At that time the wound is sufficiently healed as not to require further dressing. The two advantages of this dressing are it does not have to be changed, and it permits the infant to urinate through it rather than into it.

5. A much appreciated service, particularly by the mother and grandmother, is the removal of the cord stump before the baby is taken from the hospital. This can be safely done as early as the fifth post-

partum day, and is readily performed by twisting the stump off either with a piece of gauze or with the aid of a hemostat. The oozing base is treated with a silver nitrate stick, and then covered with a tincture of merthiolate dressing. This has been our routine the past several years, and we can strongly recommend the procedure.

POSTPARTUM CARE

The responsibility of adequate postpartum care does not end at the six weeks' examination, but should be continued throughout the first year with check-ups at three months, six months, and one year.

At the six weeks' examination, the mother should be checked as to involution and position of the uterus, perineal healing, blood pressure, urine, and hemoglobin.

Two-thirds of all retroversions that did not exist prior to pregnancy can be permanently corrected by use of the pessary.

The infant, which as a rule has been placed in the hands of the pediatrician or family physician and checked before leaving the hospital, is seen only at this visit, and is checked for the condition of the navel and circumcision.

Any endocervicitis found after the third month should be completely eradicated. This can be done in practically all cases by an office electric cautery. But few services are more appreciated by the patient, in that it not only eliminates a rather common forerunner of cancer, but the leukorrheal nuisance as well.

A woman does not have to have a leukorrheal discharge just because she has had a baby. Postpartum care is frequently synonymic with preconceptional care.

"HUMAN RELATIONS"

No branch of medicine lends itself so closely to human relations as does obstetrics. *The birth of a baby is the most humane event in all life.* It evokes the most joyous interest of every family member, and the worthy attendant will capitalize upon sharing the exaltation.

Let us be reminded, *the obstetrician should not wear the cheerless mask of a mortician.* At all times his lot is to emanate cheerfulness, and in this light, he should always be tactful enough to have a patient smiling as she leaves his office. The word, "easy," should be frequently employed when discussing her case with her. It is well to interject occasionally such remarks as, "Mrs. 'Jones,' your measurements are normal. I am sure you are going to have an easy delivery." Or, "Your baby lies in an easy position, and you should have no difficulty." Or again, "Tell Mr. 'Jones,' your blood pressure and urine have con-

Continued on page 326

EDITORIAL

The Fall Clinical Session Program

It is an unusual and certainly a very fine relationship when three organizations join forces to present a program so outstanding as the one prepared for the Fall Clinical Session. The Maine Medical Association, the Maine Heart Association, the Maine Cancer Society together with Dr. William V. Cox's committee of the Androscoggin County Medical Society have coöperated closely and harmoniously to present a list of nationally recognized physicians discussing and explaining the latest advances in medicine's fight against Cancer and Cardiac and Vascular diseases. As soon as you glance at the names of the speakers on the program which follows on the next pages you will recognize fully the opportunity that is being offered to you.

It seems quite proper to make acknowledgement to the people who are mainly responsible for this program. Dr. Cox's committee for Androscoggin County

appears on the opposite page: Dr. Romeo Beliveau of Auburn-Lewiston, President; Dr. Forrest Ames of Bangor, Chairman of the Service Committee and Miss Mary Leo, Executive Director of the Maine Cancer Society, Dr. Charles Cameron of New York City, Medical and Surgical Director of the American Cancer Society. Dr. Edward Greco of Portland, President; Dr. Charles Steele of Lewiston and Mr. William Darroch, Executive Secretary of the Maine Heart Association. These people and others have been instrumental in obtaining the speakers; the Maine Cancer Society and the Maine Heart Association are paying their expenses.

Dr. Cox rightfully says, "I trust that we will have a large attendance at the meeting for it would be too bad to have this number of top flight men come without a large audience."

From Dr. Joseph Lawrence, Director of your Washington Office, we have just received the following Bulletin:—

"The Senate, Thursday, October 4th, by voice (unrecorded) vote recommitted S. 337, Federal Aid to Medical Education. To recommit in this case means that the bill is being returned to the Senate Labor and Public Welfare Committee. It is highly unlikely that the committee will reconsider the bill at this session of Congress."

Senator Owen Brewster of Maine was active in opposition to the measure.

This is the respite and opportunity to redouble efforts for voluntary contributions for support of medical schools. It is a fact that tuition does not cover the cost of the education; it is a fact that many medical schools have incurred deficits maintaining the present levels of enrollment without increase; the solution is either Federal subsidy with the attendant danger of Federal control, or voluntary gifts by individuals, particularly doctors.

Send your checks to:—

American Medical Education Foundation
535 North Dearborn Street
Chicago 10, Illinois

Program

CLINICAL SESSION

MAINE MEDICAL ASSOCIATION

LEWISTON, MAINE

OCTOBER 28, 29 and 30, 1951

Daytime Sessions

Central Maine General Hospital

Evening Dinners and Sessions

DeWitt Hotel

Sponsored by the Androscoggin County Medical Society

COMMITTEE FOR PROGRAM AND ARRANGEMENTS

William V. Cox, M. D., Chairman

Vincent H. Beeaker, M. D.

Romeo A. Beliveau, M. D.

Alcid F. Dumais, M. D.

Dean Fisher, M. D.

John A. James, M. D.

Daniel F. D. Russell, M. D.

Charles W. Steele, M. D.

H. Paul Wakefield, M. D.

NOTICES

Registration

Sunday, October 28, 1951

5:00-7:30 P. M.

DeWitt Hotel

Monday, October 29, 1951

8:00-11:00 A. M. and 1:00-4:00 P. M.

Central Maine General Hospital

5:00-7:30 P. M.

DeWitt Hotel

Tuesday, October 30, 1951

8:00-11:00 A. M.

Central Maine General Hospital

PROGRAM

Sunday, October 28, 1951

6:30 P. M.

Maine Medical Society Dinner — DeWitt Hotel

7:30-8:30 P. M.

"The Clinical Significance of the Transplantability of Human Cancer"

Dr. Harry S. N. Greene, Professor of Pathology, Yale Medical School, New Haven

8:30-9:30 P. M.

Round Table Discussion — "Carcinoma of the Lung"

Moderator, Dr. Richard H. Overholt, Clinical Professor of Surgery, Tufts Medical School, Boston

Dr. Eugene P. Pendergrass, Professor of Radiology, University of Pennsylvania, Philadelphia

Dr. Harry S. N. Greene, Professor of Pathology, Yale Medical School, New Haven

Monday, October 29, 1951

Central Maine General Hospital

9:00-9:45 A. M.

"What's New in the Diagnosis and Treatment of Carcinoma of the Lower Bowel"

Dr. Michael R. Deddish, Attending Surgeon, Memorial Hospital, New York City

9:45-10:30 A. M.

"The Detection and Management of Carcinoma of the Breast"

Dr. Herbert W. Meyer, Professor of Clinical Surgery, New York University Medical School, New York

10:30-11:15 A. M.

Case Presentations

Drs. Deddish, Esselstyn, Greene, Meyer, Overholt, and Pendergrass

11:15-12:15 A. M.

"Modern Management of Carcinoma of the Tongue"

Dr. Oliver S. Moore, Jr., Memorial Hospital, New York City

12:15-1:30 P. M.

Luncheon

1:30-2:15 P. M.

"Radiation Treatment in Carcinoma of the Cervix"

Dr. Eugene R. Pendergrass, Professor of Radiology, University of Pennsylvania, Philadelphia

2:15-3:00 P. M.

"This Business of Cancer Detection"

Dr. Caldwell B. Esselstyn, Surgeon, Rip Van Winkle Clinic, Hudson, New York

3:00-3:45 P. M.

"Paroxysmal Tachycardia in Infants and Children. A Review of 41 Cases"

Dr. Alexander S. Nadas, Attending Physician, Children's Hospital, Boston

3:45-4:30 P. M.

7:30-8:30 P. M.

Clinic on Hypertension and Coronary Heart Disease with Case Presentations
Dr. Paul D. White, Clinical Professor of Medicine, Harvard Medical School, Boston

“Edema with Hyponatremia”
Dr. Louis G. Welt, Assistant Professor of Medicine, Yale Medical School, New Haven

6:30-7:30 P. M.

8:30-9:30 P. M.
“Heart Disease 40 Years Ago and Now”
Dr. Paul D. White, Clinical Professor of Medicine, Harvard Medical School, Boston

Dinner — DeWitt Hotel

Tuesday, October 30, 1951
Central Maine General Hospital

9:00-9:45 A. M.

10:30-11:15 A. M.

“The Differential Diagnosis of Pain in Anterior Chest”
Dr. Harold M. Marvin, Associate Professor of Medicine, Yale Medical School, New Haven

“Cardiac Surgery”
Dr. Dwight E. Harken, Assistant Professor of Surgery, Harvard Medical School, Boston

9:45-10:30 A. M.

11:15-12.00 A. M.

“Peripheral Vascular Disease”
Dr. Robert R. Linton, Assistant Professor of Surgery, Harvard Medical School, Boston

Presentation of Cases

**PROGRAM OF THE WOMAN'S AUXILIARY TO
THE MAINE MEDICAL ASSOCIATION**

Monday, October 29, 1951

10:00 A. M.

1:30 P. M.

Executive Board Meeting
State Officers and County Presidents, DeWitt Hotel, Room 206

Regular Fall Meeting of Auxiliary, DeWitt Hotel, Room 206

12:30 P. M.

3:30-5:30 P. M.

Luncheon, DeWitt Hotel, Room 206
All ladies are welcome and it is hoped that as many as possible will attend

Androscoggin County Auxiliary cordially invites all ladies to a tea at the home of Mrs. William V. Cox, 82 Gamage Avenue, Auburn
MRS. HENRY THACHER, *President,*
Androscoggin County Auxiliary

NOTES

- (1) The portion of the scientific program devoted to Cancer is sponsored by the American Cancer Society, Inc., and The Maine Cancer Society, Inc., and is financed by The Maine Cancer Society, Inc.
- (2) The portion of the scientific program devoted to Cardiac and Vascular Disease is sponsored by the American Heart Association and the Maine Heart Association and is financed by the Maine Heart Association.
- (3) Ladies are cordially invited to attend the scientific sessions and dinners.
- (4) Members of the Maine Medical Association are urged to make reservations soon at DeWitt Hotel, Hotel Littleton, or other hotels so that satisfactory accommodations can be obtained.
- (5) The Central Maine General Hospital will be open for inspection on Monday, October 29, 1951, and there will be conducted tours for those who desire to inspect the hospital.

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Ralph A. Goodwin, Jr., M. D., Auburn

Aroostook

President, Armand Albert, M. D., Van Buren
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, Ralph C. Powell, M. D., New Harbor

Oxford

President, Alfred Oestrich, M. D., Rumford
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, Harry D. McNeil, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Linus J. Stitham, M. D., Dover-Foxcroft
Secretary, George C. Howard, M. D., Guilford

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Androscoggin

Ralph A. Goodwin, Jr., M. D., of Auburn, has been appointed Secretary-Treasurer of the Androscoggin County Medical Society, to succeed Dr. Dean Fisher, who has returned to the State Bureau of Health in Augusta.

Piscataquis

The annual meeting of the Piscataquis County Medical Society was held at The Birches, Rockwood, Maine, September 20, 1951.

The following officers were elected for the coming year:

President, Linus J. Stitham, M. D., Dover-Foxcroft.

Vice President, Francis W. Bradbury, M. D., Dover-Foxcroft.

Secretary-Treasurer, George C. Howard, M. D., Guilford.

Delegate to the Maine Medical Association, Ralph C. Stuart, M. D., Guilford. Alternate, Albert M. Carde, M. D., Milo.

GEORGE C. HOWARD, M. D.,
Secretary.

Waldo

Dr. and Mrs. John A. Caswell entertained the Waldo County Medical Society at their new home in Northport on the evening of Tuesday, September 11th.

A delicious shore dinner was followed by the business meeting, at which Dr. A. O. Stein presided.

Dr. E. W. Stein reported that the majority of the local druggists did not appear in favor of maintaining open stores on Sundays and holidays, although most of them claimed to be available for emergency service.

Dr. Harold Pooler of the Bangor State Hospital was the speaker of the evening. He talked informally on the practical aspects of psychiatric treatment, especially those phases within the province of the general practitioner, and his subject was of much interest to all those present.

RAYMOND L. TORREY, M. D.,
Secretary.

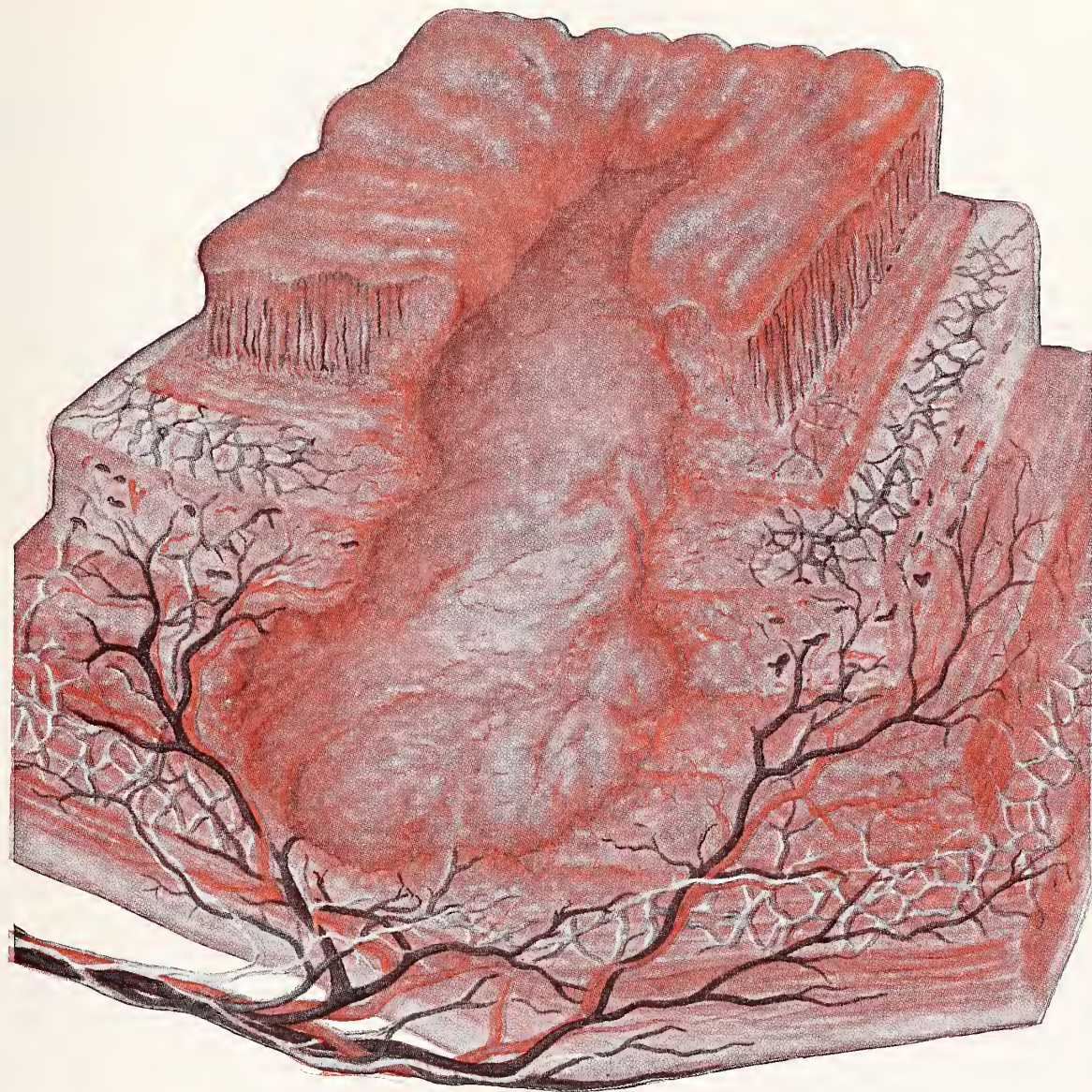
Washington

In place of the regular September meeting, members of the Washington County Medical Society attended the Scientific Sessions of the New Brunswick Medical Society held at St. Andrews, N. B., on September 5-8, 1951.

Members attending were Drs. S. R. Webber, Hazen Mitchell and John Metcalf of Calais; Gordon Sears of Woodland; James Bates of Eastport; Karl Larson of East Machias; H. S. Everett, L. W. Brownrigg, E. S. Stiles, E. B. Johnston, E. O. Thomas of St. Stephen, N. B.; Fred Sears of Milltown, N. B.; E. A. Stuart of St. Andrews, N. B.; and R. D. Smith of St. George, N. B.

Dr. L. W. Brownrigg of St. Stephen, N. B., a member of the Maine Medical Association, was retiring president of the New Brunswick Medical Association. Dr. S. R. Webber of Calais, a member of the Maine Medical Association, was elected to the Executive Board of the New Brunswick Medical Association.

KARL V. LARSON, M. D.,
Secretary.



The Anticholinergic Action of Banthine in Peptic Ulcer

—reduces the excessive vagal stimulation characteristic of the ulcer diathesis by inhibiting stimuli at . . .

- 1. The parasympathetic and sympathetic ganglia.
- 2. The effector organs of the parasympathetic system.



By this action Banthine consistently reduces hypermotility and, usually, hyperacidity.

Banthine[®]
BROMIDE
BRAND OF METHANTHELINE BROMIDE

Suggested Dosage:
One or two tablets
(50 to 100 mg.)
every six hours.

A Little About Some of Your Colleagues

Wallace E. Webber, M. D., of Lewiston, Honorary Member of the Maine Medical Association, writes us as follows: "About the father and son talk. I started in 1895 together with X-ray and diphtheria antitoxin. My son Wedgwood graduated from Yale in 1934 and over the phone comes—is this the old man or the boy—and alas the boy is a man of 44 years. How the idea of boy does stick in the home town."

Dr. Harvey Howard, of Freeport, Honorary Member of the Maine Medical Association, and Mrs. Howard were honored at a surprise 55th wedding anniversary party, September 2nd, on a recent visit to Centerville, N. B. Long distance arrangements for the party were made by their son, Dr. Gordon Howard, who is located in Los Angeles, California.

Dr. Howard has been practicing for 56 years. In 1897, one year after their marriage, they located in Freeport, where he practiced until 1910, when they moved to Nebraska. They returned to Freeport in 1926. He operated a private hospital there for many years and has also served as a county medical examiner.

Dr. Emerson H. (E. H.) Drake (chest surgery) is the son-half of a doctor father-son combination. His father is Dr. Carl B. Drake, a long time practitioner in internal medicine in St. Paul, Minnesota. Dr. Carl is also a Clinical Associate Professor of Medicine at the University of Minnesota, which out of deference to Dr. Emerson H. is located on Portland Avenue.

This father-son combination has no confusion as to which is wanted naturally but Dr. E. H. (Emerson) and Dr. E. H. (Eugene) Drake have a lot of fun swapping bills, appointments and speaking engagements.

Edward A. Greco, M. D., of Portland, has assumed his duties as President of the Maine Heart Association, succeeding the late Dr. Wilfrid J. Comeau of Bangor.

Dr. Greco is a graduate of Georgetown University and its medical school. He is a Fellow of the American College of Physicians and of the American College of Chest Physicians, and Regent for New England of the latter group. He is also a member of the American Trudeau Society.

Dr. Greco, a veteran of the First World War, served in the Second World War as Chief of Medical Staff of the 121st Medical Division and as Assistant Chief of Service in the 67th General Hospital, the Maine General Hospital unit.

He is one of the original six charter members of the Maine Heart Association and was appointed Vice President of the organization in June. He is Vice President of the New England Cardiovascular Society of Boston.

Dr. James M. Parker and Mrs. Parker of Portland, were honored at the annual banquet of the New England Surgical Society, September 21; their 17th wedding anniversary.

Eight Portland surgeons presented clinical papers at a recent meeting of the New England Surgical Society in York Harbor.

The speakers were: Drs. Isaac M. Webber, Theodore C. Bramhall, George L. Maltby, Donald F. Marshall, Louis A. Asali, Eugene P. McManamy, Emerson H. Drake and James M. Parker.

Dr. Parker, Chairman of the committee on arrangements for the convention, was assisted by Dr. Bramhall, Dr. Asali, Dr. Willard H. Bunker of York Harbor and Dr. Stephen A. Cobb of Sanford, executive committeeman for Maine.

Let's keep this column alive! Send your information to the Maine Medical Association office, 142 High Street, Portland 3, Maine. We will do the rest!

Woman's Auxiliary to the Maine Medical Association

Officers

1951 - 1952

President, Mrs. Clyde I. Swett, Island Falls
President-elect, Mrs. Philip B. Chase, Farmington
Vice President, Mrs. Asa Adams, Orono
Recording Secretary, Mrs. Donald H. Daniels, Portland
Corresponding Secretary, Mrs. Martyn A. Vickers, Bangor
Treasurer, Mrs. Harold E. Small, Augusta

Standing Committees

Organization, Mrs. Philip B. Chase, Farmington
Program, Mrs. Charles W. Steele, Lewiston
Public Relations, Mrs. Richard S. Hawkes, Portland
Press and Publicity, Mrs. Frank Barden, Kennebunk
Bulletin, Mrs. Clement Donahue, Caribou
Today's Health, Mrs. Merton N. Flanders, Lewiston
Publications, Mrs. Edward W. Holland, Springvale

Revisions, Mrs. Ralph A. Goodwin, Auburn
Necrology, Mrs. James W. Shippee, Winthrop
Legislation, Mrs. Frederic B. Champlin, Waterville

Special Committee

Civil Defense, Mrs. Otis B. Tibbetts, Auburn

Maine Medical Association Advisory Council

William F. Mahaney, M. D., Saco
Currier C. Weymouth, M. D., Farmington
Robert W. Belknap, M. D., Damariscotta
Raymond L. Torrey, M. D., Searsport
Raymond E. Weymouth, M. D., Bar Harbor
Norman H. Nickerson, M. D., Greenville

NECROLOGIES



Ernest V. Call, M. D.

1876 - 1951

Dr. Ernest V. Call, of Lewiston, Maine, former President of the Maine Medical Association, died August 29, 1951, from coronary heart disease. He was born in Pittsfield, Maine, August 10, 1876. After completing the course at Maine Central Institute in Pittsfield, he entered Bates College and was graduated in 1900. While at Bates, he was prominent in athletics, playing varsity football and was All State Tackle during his last two years. His interest in athletics had continued through the years.

He received the degree of M. D. from the Maine Medical School in 1904. Following this, he began the practice of medicine in Lewiston, Maine. He immediately became connected with the Central Maine General Hospital. For many years, he was Chief Surgeon on the surgical service. He was Past President of the Medical Staff.

Dr. Call was a Past President of the Maine Medical Association, a member of the American College of Surgeons, a member of the Maine State Health and Welfare Advisory Council. Always active in civic affairs, Dr. Call was a Past President of the Lewiston Chamber of Commerce, a member of the local Rotary Club, and the Martindale Country Club, where he was an enthusiast at golf.

In 1904, he married Mabel Furbush of Lewiston. A daughter, Virginia, now Mrs. Leland N. Ross, of Fitchburg, Mass., a son, George F. Call, of Lewiston, and Mrs. Call survive, as do three grandchildren. Dr. Call was a man of almost limitless vitality and enthusiasm. This enthusiasm embraced his professional interests as well as civic interests in the community. He loved life in all its phases. His enthusiasm was an inspiration to his many friends. He will be greatly missed.

Guy E. Dore, M. D.

1887 - 1951

Guy E. Dore, M. D., 63, died suddenly March 13, 1951, at his home in Guilford, Maine.

Born at Monson, Maine, he attended Monson Public Schools, Monson Academy and graduated from Vermont Medical School in 1901. After practicing in Cambridge, Maine, for six months he opened his office in Guilford and except for time served in World War I as a Medical Officer, he has practiced there since.

Dr. Dore always took an active part in civil, social and religious affairs of his town and county. He was a 32nd degree Mason and a member of the Mystic Shrine. His religious affiliations were with the Methodist Church. He served

as President of the Piscataquis County Medical Society, Secretary-Treasurer for many years and as Delegate to the Maine Medical Association.

In 1912, he married the former Barbara Steward of Monson. Following her death he married Doris M. Todd, R. N., who survives him with a son, Craig.

All through his 38 years of practice he served his community with unselfish devotion, loyalty and kindness. He was loved and admired by his many friends and patients not only for his sympathy and understanding but for his fine sense of humor and in his passing the profession has lost an able physician and a true gentleman.

NEWS AND NOTES

Third Annual Pediatric Institute Held at the Eastern Maine General Hospital, Bangor, Maine, September 21, 1951

More than 70 physicians from eastern and northern Maine with some from Portland and Lewiston, attended a pediatric institute for general practitioners at the Eastern Maine General Hospital Friday, September 21st. The institute, at which Dr. Clair S. Bauman of Waterville, state chairman of the American Academy of Pediatrics, presided, was considered a most successful session. The institute was sponsored by the Division of Maternal and Child Health of the Maine Department of Health and Welfare and was endorsed by the Maine Medical Association.

Dr. Albert W. Fellows of Bangor introduced the speakers.

Dr. Louis K. Diamond, associate professor of pediatrics at Harvard Medical School, director of the Hematology Research Laboratory, and senior physician at the Children's Medical Center in Boston, spoke on "Treatable Anemias of Infancy and Childhood." Following Dr. Diamond's talk there was a discussion period.

"Drug Dosage for Children" was the topic of Dr. Harry Shwachman, physician to Infants' and Children's Hospitals of the Children's Medical Center, director of the Division of Clinical Laboratories at the Children's Medical Center, Boston.

Dr. Alexander Nadas, associate cardiologist of the Children's Medical Center, Boston, spoke on "Congenital Heart Disease—Its Treatment and Prognosis."

Ward rounds were followed by a discussion period.

United States Civil Service Commission Medical Officer Examinations

The United States Civil Service Commission has announced a Medical Officer examination for filling the following positions in St. Elizabeth's Hospital, Washington, D. C.: Rotating Intern, \$2,200 a year; Psychiatric Resident, \$3,400 to \$4,200 a year; Surgical Resident, \$4,200 to \$4,700 a year; and General Practice Resident, \$3,400 to \$3,800 a year.

To qualify for these positions, all applicants must have had appropriate education in an approved medical school. Applicants for psychiatric, surgical, and general practice resident must also have completed a 1-year internship. In addition, applicants for surgical resident appointments must have completed a 2-year residency in surgery. No written tests are required. The maximum age limit is 35 years.

Persons who applied for but did not receive appointments under the Commission's 1950 examination for the above positions should apply for this new examination.

Further information and application forms may be obtained from the U. S. Civil Service Commission, Washington 25, D. C., from Civil Service regional offices, or from most first- and second-class post offices. Applications will be accepted until further notice by the Committee of U. S. Civil Service Examiners, St. Elizabeth's Hospital, Washington 25, D. C.

The National Foundation for Infantile Paralysis Postdoctoral Fellowships

The National Foundation for Infantile Paralysis announces the availability of a limited number of additional postdoctoral fellowships to candidates whose interests are research and teaching in medicine and the related biological and physical sciences. The purpose of these National Foundation fellowships is to increase the number of professional workers qualified to give leadership in the solution of basic and clinical research problems of poliomyelitis and other crippling diseases.

The fellowships cover a period of from one to five years. Stipends to Fellows range from \$3,600-\$7,000 a year, with marital and dependency status considered in determining individual awards.

Complete information concerning qualifications and applications may be obtained from: Division of Professional Education, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

Sources of Motion Pictures on Health

A revised list of "Sources of Motion Pictures on Health" has been prepared by the Committee on Medical Motion Pictures of the American Medical Association. This new mimeographed list includes 9 pages of addresses of the major loan and rental libraries, the state health departments' film libraries and references to printed lists and catalogs. Copies are available from:

Committee on Medical Motion Pictures,
American Medical Association,
535 North Dearborn Street,
Chicago 10, Illinois.

Announcement of Van Meter Prize Award

The American Goiter Association again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association which will be held in St. Louis, Missouri, May 1, 2 and 3, 1952, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy in duplicate sent to the Corresponding Secretary, Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, Colorado, not later than March 1, 1952. The committee, who will review the manuscripts, is composed of men well qualified to judge the merits of the competing essays.

A place will be reserved on the program of the annual meeting for the presentation of the Prize Award Essay by the author, if it is possible for him to attend. The essay will be published in the annual Proceedings of the Association.

**Department of Health and Welfare
Division of Maternal and Child Health
(Including Services for Crippled Children)**

Clinic Schedule—1951

ORTHOPEDIC CLINICS

Portland — Maine General Hospital, 9.00-11.00 a. m.: Jan. 8, Feb. 12, Mar. 12, April 9, May 14, June 11, July 9, Aug. 13, Sept. 10, Oct. 8, Nov. 5, Dec. 10.

Lewiston — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 19, Feb. 16, Mar. 16, April 20, May 18, June 15, July 20, Aug. 17, Sept. 21, Oct. 19, Nov. 16, Dec. 21.

Rumford — Community Hospital, 1.30-3.00 p. m.: Mar. 14, June 20, Sept. 19, Dec. 19.

Waterville — Thayer Hospital, 1.30-3.00 p. m.: Feb. 15, April 26, June 28, Aug. 23, Oct. 25, Dec. 27.

Rockland — Knox County Hospital, 1.30-3.00 p. m.: Feb. 8, May 17, Aug. 16, Nov. 15.

Machias — Normal School, 1.30-3.00 p. m.: Feb. 14, Apr. 11, June 13, Aug. 8, Oct. 10, Dec. 12.

Presque Isle — Northern Maine Sanatorium, 9.00-11.00 a. m.—1.00-3.00 p. m.: Jan. 9, Mar. 7, May 8, July 11, Sept. 11, Nov. 7.

Houlton — Aroostook General Hospital, 9.00-11.00 a. m.: Mar. 6, July 10, Nov. 6.

Fort Kent — Normal School, 10.00-1.00 p. m.: Jan. 10, May 9, Sept. 12.

Bangor — Eastern Maine General Hospital, 1.30-3.00 p. m.: Jan. 25, Mar. 29, May 24, July 26, Sept. 27, Nov. 29.

CARDIAC CLINICS

Portland — Maine General Hospital, 9.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

Bangor — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

HARD-OF-HEARING CLINICS

Waterville — Thayer Hospital, 1.30-3.30 p. m.: Feb. 21, June 6, Sept. 5, Dec. 5.

PEDIATRIC CLINICS

Bangor — Eastern Maine General Hospital, 1.30 p. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

Waterville — Thayer Hospital, 1.30 p. m.: Jan. 2, Feb. 6, Mar. 6, April 3, May 1, June 5, July 3, Aug. 7, Sept. 4, Oct. 2, Nov. 6, Dec. 4.

Presque Isle — Northern Maine Sanatorium, 1.30 p. m.: Jan. 24, Mar. 28, May 23, July 25, Sept. 26, Nov. 28.

By appointment only.

**Neurosurgical and Convulsive Clinics
at the
Maine General Hospital**

Neurological and Neurosurgical Clinics, both therapeutic and diagnostic, are held at the Maine General Hospital, Portland, on the 1st and 3rd Thursday of each month at 2.00 P. M. The convulsive clinic, designated for the diagnosis and treatment of epilepsy and other convulsive disorders, is held at the same time on the 2nd Thursday of each month.

Advertisement



**From where I sit
by Joe Marsh**

Skip Makes a Slip

Miss Gilbert, the teacher, was telling me how Skip Lawson almost went to sleep in her physics class.

She saw him nodding and—since they were studying electricity—said in a loud voice: “Maybe MR. LAWSON will explain to us what electricity is.” Skip started up, looked around wildly, and blurted out, “Gee! I used to know, Miss Gilbert, but somehow I forgot.”

“What a loss to science!” sighs Miss Gilbert. “No one to this day knows what electricity really is, and here we have a genius who could explain it—but forgot!”

From where I sit, I hope this taught Skip that you’re better off if you admit you *don’t* know all answers. Some grownups haven’t learned that yet—like the ones who are always telling other people how a man should practice his profession, or what beverage is “good” for a person. I like a temperate glass of beer, myself, but if you prefer buttermilk I won’t argue. I’ve seen too many “know-it-alls” turn out to be wrong!

Joe Marsh

Prescription Perfect



RED LABEL • BLACK LABEL

Both 86.8 Proof

Every drop of Johnnie Walker is made in Scotland—using only Scotland's crystal-clear spring water. Every drop of Johnnie Walker is distilled with the skill and care that comes from many generations of fine whisky-making.

Every drop of Johnnie Walker is guarded all the way to give you perfect Scotch whisky... the same high quality the world over.



Born 1820... still going strong

JOHNNIE WALKER

BLENDED SCOTCH WHISKY

Canada Dry Ginger Ale, Inc., New York, N. Y., Sole Importer

Obstetric Helps—Continued from page 315

tinued normal, and that your progress has been excellent." Yes, simple statements, but how they do register!

Above all, let us not overlook the husband's interest in the case. *When a husband asks us to deliver his wife, he is paying us a special compliment.* This is true whether or not the remuneration will be immediately forthcoming.

Certainly we should have more than a casual speaking acquaintance with him. He should be invited to make at least one visit to the office during the prenatal period. At this visit we should meet him as man to man, and let him know we expect to give his wife the best possible care, and that we would appreciate his coöperation by getting in touch with us anytime he has any question about her welfare.

Probably our biggest service to him is keeping him informed as to his wife's progress during her labor. *Here the Golden Rule is very fitting.* It is certainly inconsiderate of us, when we allow him to "sweat it out" hour after hour in the waiting room. If the labor should be prolonged, it is a kindly thing to advise him to go home for some sleep, or to return to his office, and assure him we will report to him from time to time, or at least when his wife is to be taken to the delivery room. And when we report the outcome of the delivery to him, let us be prepared not only to give his wife's condition and the sex of the baby, but also its weight.

No greater inner warmth comes to us than that expressed in a brief note from the husband, which we sometimes receive along with his check a few days after he has taken his wife and child home from the hospital, in which he states

"Dear Dr. 'So and So',

"Mrs. 'Jones' and I wish to remind you of our great appreciation of the excellent service you gave us. You helped us at a most important time in our lives, and we will always be grateful to you.

"May your good work continue for many, many years to come."

These remarks upon "Human Relations" can be interpreted and appraised as those of "Good Public Relations," a policy so sorely needed today.

In conclusion, the over-all emphasis of this presentation has been upon the importance of service to the patient. Let it be said, "If we give service, only two things can prevent our success, physical death and moral death. The one is inevitable, the other is up to us."

Finally, I would like to leave the souvenir thought:

The mortal life of a worthy obstetrician extends far beyond his tomb.



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, November, 1951

No. 11

MANAGEMENT OF ENDOMETRIAL CARCINOMA*

JOHN A. JAMES, M. D., Auburn, Maine

A frequently heard inquiry is "How does one best treat carcinoma of the endometrium?" The question is intriguing and when one endeavors to find an exact answer by reviewing reports from various clinics, different methods and approaches certainly persist. However, when treatment of any malady is to be evaluated it must be considered together with the prognosis, and the results of follow-up studies, and thereby some conclusions can be made.

The purpose of this paper is to review briefly the important clinical aspects of the disease and to formulate a workable approach to the management of this common tumor in the light of our present knowledge. With no original work or cases to present, this is best done by reviewing the results and experiences of some of the better clinics dealing with large numbers of these patients with the hope of adopting the most suitable course of treatment according to the available radiological and surgical means of this hospital and staff.

Endometrial carcinoma is primarily a disease of the late forties and fifties occurring during and after the menopause with 80% of the cases between the ages of fifty and sixty. Somewhat over 16,000 women die annually from carcinoma of the uterus in this country, 20% of this number being due to fundal cancer. Along with the carcinomas of the breast and cervix, which are of about equal incidence, they make

up the large majority of malignant tumors in the female. There is about one case of endometrial carcinoma to every eight or ten cervical carcinomas.

The factors of constitutional habitus are rather interesting in that the disease is frequently associated with obesity, hypertension, diabetes mellitus, a history of previous menstrual irregularities, infertility and nulliparity. The incidence is three or four times greater in the unmarried nulligravid woman.

As stated by Schmitz one of the greatest steps forward in the diagnosis of this disease is the now universal recognition that this type of malignancy can occur during the active menstrual life and need not necessarily cause any irregular menstrual bleeding.

Irregular bleeding is the most common symptom of uterine cancer, however, and for all practical purposes is the only real symptom of cancer of the fundus. Therefore, since nearly 80% of patients with fundal cancer have passed the menopause, post-menopausal bleeding of any amount should be investigated immediately by thorough diagnostic curettage regardless of the presence of any other clinical findings or not. It is also stated that in all cases of post-menopausal bleeding of any degree, one-half will have pelvic cancer on subsequent investigation.

Physical findings vary from none at all to moderate uterine enlargement to marked pelvic floor and adnexal fixation of advanced disease. Fibroids are frequently associated with the disease and one must not attribute the signs of bleeding to these until curret-

* From the Department of Obstetrics, Central Maine General Hospital, Lewiston, Maine.

tage has ruled out carcinoma. Occasionally a metastatic implant in the cervix or on the vagina will be the only findings.

Diagnostic procedures of value are the office endometrial biopsy and the vaginal smear and Papanicolaou technique. The endometrial biopsy is useful in attempting to establish the diagnosis before the contemplated curettage. In other words a negative biopsy in a patient with irregular bleeding makes a diagnostic curettage mandatory. The vaginal smear in the best cytology laboratories so far detect only 80% of cases of endometrial carcinoma. A 20% error is far too large to rely on this measure as a definitive diagnostic procedure. Finally the diagnostic dilatation and curettage is the only positive means of ruling out this disease and the extent of it if present and few cases will be missed if this procedure alone is done correctly in all suspicious or suggestive cases.

Endocervical curettage before dilatation and endometrial curettage is another useful procedure in differentiating the occasional case of adenocarcinoma of the cervix from that of the endometrium. The importance being in the fact that treatment of the two diseases is essentially different and histologically they are difficult to differentiate.

As to the pathological features, suffice it to say, the type of carcinoma arising from the endometrium is nearly always an adenocarcinoma. Cure statistics tend to show the prognosis decreases proportionately with the loss of tumor differentiation, that is, the degree of clinical malignancy follows that of histological malignancy.

The accepted courses of therapy in this country today have evolved over a period of about 50 years. The early treatment was by surgery, either vaginal or abdominal hysterectomy. Cullen in 1900 reported a small series of such cases in which 66% were well from 11 months to 6 years thereafter, with a 10% operative mortality. Mahle in 1923 reported 50-55% of his cases well at the time of his report. In reviewing the results from surgery alone consisting of a total hysterectomy with bilateral salpingo-oophorectomy done either vaginally or trans-abdominally about one-half of the patients failed to survive 5 years and this included only operable cases.

Because the results of surgical management of this disease were so much better than that in carcinoma of the cervix it seems the surgeons were loathe to submit patients to irradiation.

Finally the cases designated inoperable were treated by X-ray therapy. Burman reported a 12.9%, 5-year cure and Miller a 34.4%, 5-year cure in their cases. Some of Miller's cases were considered operable clinically but had refused surgery.

These results led to further trials with irradiation therapy. All cases now were submitted to deep X-ray

therapy alone or in combination with intra-uterine radium. Heyman reported 43.5%, 5-year cure rate of all cases and a 60% figure in the cases considered operable.

It was now becoming apparent the results of radiation alone or surgery alone compared favorably, but the mortality from irradiation was only one-tenth that of surgery.

In 1936, Arneson reported a study of cases in which pre-operative radiation had been followed by surgery. All of these cases were found to have active-looking disease in the removed uterus with 3,000 mgm. hours of radium or less. TeLinde found active tumor in over 50% of their cases treated with 4,000 mgm. hours of radium plus a full course of roentgen therapy. This has been shown repeatedly since.

It then appeared logical that the combined therapy of pre-operative irradiation and total hysterectomy with bilateral salpingo-oophorectomy would lead to improved cure rate figures.

Subsequent reports following in the next few years conclusively showed a much higher per cent of 5-year cures.

Healy and Brown in 1939 reported a 79% 5-year cure using pre-operative intra-uterine radium and roentgen radiation followed by surgery. Miller in 1940 showed 70.5%, 5-year cures with pre-operative roentgen radiation and surgery, but the figure corrected for non-cancer deaths was 82.3%. In 1946, Miller reported 96 cases treated similarly with a 77%, 5-year cure rate. Schmitz in 1949 reported 80%, 5-year cures with pre-operative intra-uterine radium and surgery. Sheehan and Tucker in 1949 reported from the Free Hospital for women a small series treated with pre-operative, intra-uterine radium, surgery, followed by post-operative deep therapy with 87.5%, 5-year cures. Hundley from the University of Maryland reported 23 cases similarly treated with 84.5%, 5-year survivals.

It is strikingly apparent from these reports that some form of pre-operative irradiation followed by surgery in four to six weeks which has now become standardized as a total hysterectomy and bilateral salpingo-oophorectomy assures the best possible chance of a cure at the present time. There is some evidence that post-operative radiation may be of added value but the series so treated are too small to be conclusive to date.

From personal observations it can be stated that there is a revival of surgery alone in treating these cases in some clinics. By doing a more radical wide excision of the uterus and adnexa in a modified Wertheim procedure it is hoped that cures by surgery alone may approach that of the combined treatment. This has probably been stimulated by the renewal of the radical operation for cancer of the

cervix. As yet there are no available cure rate figures for these cases.

In summary some conclusions are evident. Early diagnosis as in all malignant diseases is imperative for good results. The only positive diagnostic procedure is the curettage and this is mandatory in all patients with post-menopausal bleeding of any amount and must be considered in cases of so-called functional bleeding especially after age forty. The diagnosis established, the patient is best treated by some means of pre-operative irradiation either intra-uterine radium, roentgen therapy, or both, followed by surgery consisting of total hysterectomy and bilateral salpingo-oophorectomy in the operable cases. There is no place for an incomplete operation such as the supra-cervical hysterectomy in this disease. Suggested aids in avoiding spill of tumor at the time of surgery are suturing together the external cervical os, ligating or clamping the oviducts and placing no tenacula or sutures into the diseased fundus.

To avoid the incomplete operation in the occasional case of unsuspected cancer all specimens should be opened in the operating room before the abdomen is closed so that the adnexa may be excised if they remain. In these cases it would seem that post-operative radiation is indicated. Post-operative radiation in the patient already having received pre-operative radium may be of value, but has not been substantiated. The surgical management alone at the present time does not seem justified, except possibly in the cases of adenoacanthoma which are notoriously more

radio resistant, or unless the surgeon is prepared to carry out a radical procedure somewhat along the lines of the Wertheim operation for carcinoma of the cervix.

BIBLIOGRAPHY

Healy, W. P., and Brown, R. L.: Experience with surgical and radiation therapy in carcinoma of the corpus uteri. *American Journal of Obstetrics and Gynecology*, 38:1, 1939.

Hundley, J. M., Jr., Diggs, E. S., and Kardash, T.: Adenocarcinoma of the uterus. *American Journal of Obstetrics and Gynecology*, 57:52-68, 1949.

Miller, N. F.: Carcinoma of the body of the uterus. *American Journal of Obstetrics and Gynecology*, 40:791, 1940.

Miller, N. F., and Henderson, C. W.: Corpus carcinoma. A study of 322 cases. *American Journal of Obstetrics and Gynecology*, 52:894, 1946.

Parsons, L.: Carcinoma of the endometrium. *Monographs on Surgery*. (Thomas Nelson & Sons, New York), 1950, pp. 203-304.

Rock, J.: Cancer of the uterine fundus. *Cancer: A manual for practitioners*, 2nd edition (American Cancer Society, Massachusetts Division, Inc., Boston), 1950, pp. 130-135.

Scheffey, L. C., Thudium, W. J., and Aarell, D. M.: Further experience in the management of cancer of the uterus, with five-year end results in seventy-five patients. *American Journal of Obstetrics and Gynecology*, 46:786-802, 1943.

Schmitz, H. E.: Diagnosis and treatment of endometrial cancer. *The Journal of the Kansas Medical Society Cancer supplement*, 1949.

Sheehan, E. B., and Tucker, A. W.: Cancer of the endometrium. *The Journal of the South Carolina Medical Association*, XLV, No. 8, 1949.

TeLinde, R. W.: Carcinoma of the corpus uteri. *Operative Gynecology*. (Philadelphia, J. B. Lippincott Co.), 1949, pp. 395-415.

CARCINOMA OF THE CERVIX -- SURGICAL TREATMENT*

(A Review)

ROSS W. GREEN, M. D., Auburn, Maine

Prior to 1900, cervical amputation and cervical cauterization¹ were the only procedures used for the treatment of this disease.

From 1900 to 1916, cervical cancer was treated by panhysterectomy. Principally through the excellent work of Wertheim of Vienna a radical hysterectomy was developed. It was first used on all stages of the disease, but experience disclosed that it had its limitations.

With the discovery and applicability of radiotherapeutic methods the surgical treatment of this tumor was largely abandoned. In 1916, Heyman² of Sweden started the first thorough study of a series of cases treated with radium. As a result of his work, others

followed this mode of therapy and in the ensuing years radiation became the accepted treatment for cervical cancer.

Through the years there have been a small group of men who have attempted to prove that surgery has a place in the management of this disease.

Bonney³ in London believed the combined procedure (Wertheim operation and pelvic node dissection) was the most logical approach to this problem. His mortality figures were so high that it led many to abandon the node dissection part of the operation. Taussig⁴ believed that radiation treatment failed to permanently eradicate cancer cells in the deep pelvic glands. Consequently he performed an iliac lymphadenectomy in a series of Stage II cases following radiation therapy. Although his results were sur-

*From the Surgical Service, Central Maine General Hospital, Lewiston, Maine.

passed by later improved radiation methods, nevertheless he was able to cure some of his cases who had metastatic disease in the pelvic glands.

During the past decade, Meigs,⁵ impressed with the work of Bonney,³ Taussig,⁴ and Lynch⁷ who demonstrated viable cancer cells in cervixes which had undergone radiation treatment decided to revive the Wertheim radical hysterectomy along with the pelvic lymph node dissection as a combined procedure. His five reasons for doing this are:—

1. If the cervix has been removed, there is no chance for a recurrence in it.
2. If the cervix has been removed, no cervical cancer can regrow in it as a reoccurrence.
3. Certain cancers of the cervix are radiation resistant — a fact proved at the Pondville Hospital, where multiple biopsies are performed at the time X-ray and radiation therapy are being carried out.
4. There will be less damage to the bowel if surgery is undertaken.
5. From the work of both Bonney and Taussig, it is obvious that patients with lymph node metastases can be cured by surgery in some instances and he believes it is not possible to cure cancer in the deep pelvic nodes.

His main difficulty in the early cases was ureteral injury. With improved technique and experience, this disturbing complication has been largely overcome. It has been his experience that the ideal candidate for this operation should be young, thin, and have an early lesion. In this group mortality is zero, morbidity almost negligible, and the five-year survival equal that of radiation-treated cases.

In the Stage II group, there is a lower morbidity

than X-ray treated cases, but the five-year survival figures are poor.

Surgical treatment of advanced cases is now in the experimental stage.⁹ Carcinoma of the cervix is essentially a local disease. Many cases die without distant metastases. It is on this premise that the pelvic exenteration operation is perhaps justified. With improvement in anesthesia, pre- and post-operative care, more and more cases which previously were deemed hopeless undergo ultra-radical surgery. Mortality and morbidity is high and it is too early to evaluate the salvage.

The usual indications for this type of surgery are: 1. Cases so far advanced when first seen that the radiologist can offer only limited palliation; 2. Radiation-resistant cases if and when they can be identified as such; 3. A certain group who have extensive recurrent disease in lieu of re-radiation. In addition, the patient must be emotionally and mentally stable and have a profound desire to live.

Conclusion: Sporadic attempts have been made through the years to use surgery in the treatment of cancer of the cervix. In the past few years, it has been demonstrated that in certain selected cases surgery is an effective method for treating this disease.

REFERENCES

1. Ackerman, L. V., Regato, J. A.: Cancer (C. V. Mosby, 1947), 845-897.
2. Heyman, J.: Surg., Gyn., and Obst., 1925, 40:161-164.
3. Bonney, Victor: Amer. Journ. Obst., 1935, 40:815-830.
4. Taussig, F. J.: Amer. Journ. Obst., 1934, 28:650-667.
5. Meigs, Joe V.: Surg., Gyn., and Obst., 1944, 78:195-199.
6. Meigs, Joe V.: Amer. Journ. Roent., 1947, 57:679-684.
7. Lynch, F. W.: Amer. Journ. Obst., 1931, 22:550-559.
8. Morris, J. M., Meigs, J. V.: Surg., Gyn., and Obst., 1950, 90:135-149.
9. Parsons, L., Bell, J. W.: Cancer, 1950, Vol. 3, 205-213.

According to the Consumers' Price Index, compiled by the United States Bureau of Labor Statistics, which is considered our best general measure of the purchasing power of the consumer's dollar, the price of medical care has risen 48% since 1935-1939 while the general cost of living has risen 72%. Stated another way, a dollar in the base period could buy a dollar's worth of medical care or a dollar's worth of all the goods and services priced for the Consumers' Price Index; a dollar in 1950 could buy only 58 cents' worth (58.2) of all goods and services but 68 cents' worth (67.6) of medical care. Thus, in terms of the purchasing power of the dollar, medical care was 14% cheaper in 1950 than in 1935-1939. (J. A. M. A., Sept. 15, 1951—p. 258.

During the recent Atlantic City session of the A. M. A., the Bureau of Health Education, at the request of the U. S. Department of State, made 24 tape recordings based on scientific exhibits and papers. These were for broadcasts to English-speaking countries abroad. They have now been scheduled for 24 weeks. The first broadcast was made on Saturday afternoon, July 21.

All of the programs, which will be carried on the "Voice of America," are professional in character and are in no way concerned with political, economic or controversial issues.

Thirteen of the programs will be made into a special series of electrical transcriptions available in the United States to county medical societies about September 15. (From the Secretary's Letter, American Medical Association, August 7, 1951.)

THE INTRACAVITARY APPLICATION OF RADIUM IN THE TREATMENT OF CERVICAL CANCER*

CLARK F. MILLER, M. D., Lewiston, Maine

The purpose of this article is to discuss, as briefly as possible, the application of radium in cases of carcinoma of the cervix, following the method recently adopted at this hospital.

The applicator used is that devised and perfected by Ernst within the past few years. (Fig. 1) It con-

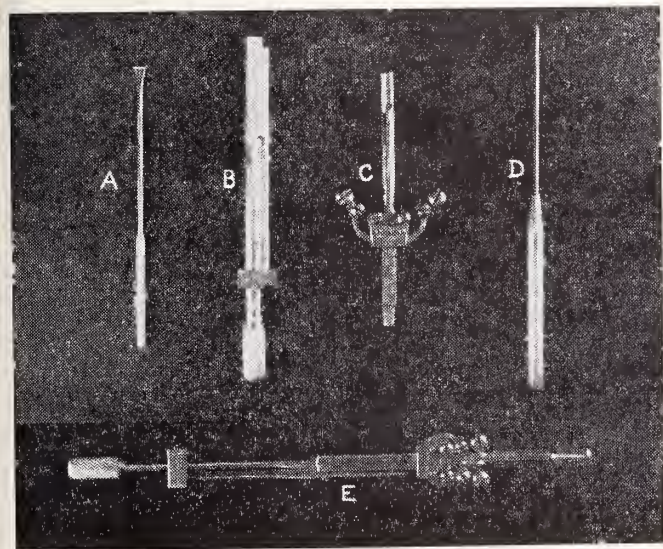


Figure 1: A—Special self-retaining screwdriver for colpostat caps.
B—Expanding colpostat handle.
C—Applicator in expanded position.
D—Handle for removing applicator.
E—Applicator and handle in retracted position, ready for insertion.

sists essentially of a composite brass applicator comprising six colpostats and an intrauterine tandem in one complete unit. The tandem has three separate segments. Flexibility and adaptability to various anatomical and pathological situations met with in practice are greater than might be expected in a mechanically rigid applicator of this kind. The outer two colpostats are removable. The arms can be retracted and expanded. The applicator may be used without the tandem (as in cervical stump cancer) or with one, two or three of the tandem segments, depending on the length of the cervical canal and intrauterine cavity.

There are thus nine radium sources when the complete applicator is used. In the average case, the most uniform distribution is obtained by filling each compartment with a 10 mg. source, giving a total of 90 mg. (Fig. 2) Any one compartment may, if neces-

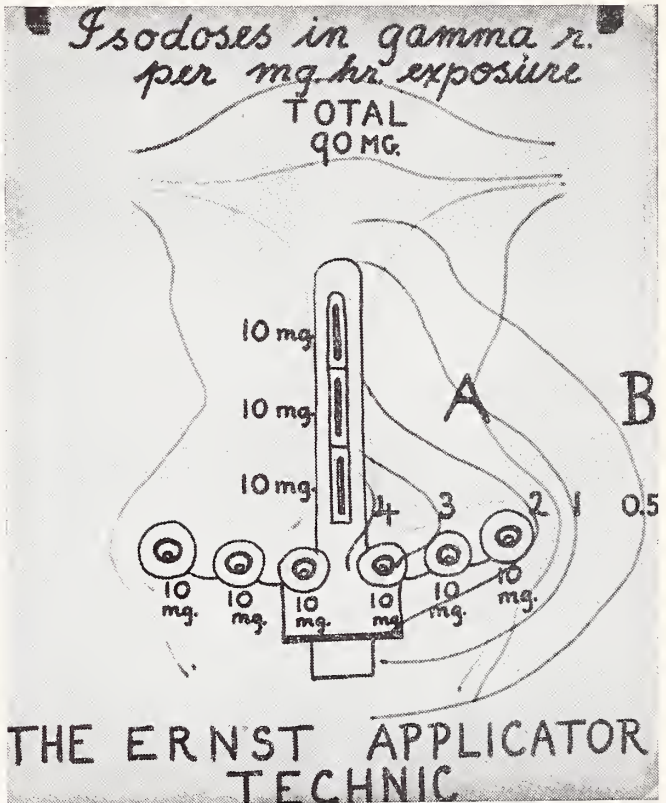


Figure 2: Modified from Clinical Therapeutic Radiology, W. B. Saunders Co.

sary, hold as much as 30 mg. when the radium is available, as it is here, in 10 mg. needles of 2 cm. length or smaller. Each case is of course assessed individually, but seventy-two hours (6480 mg. hr.) is usually considered the maximum safe dosage when given in one application and in combination with external roentgen therapy.

The type of radium therapy record used is shown in Figure 3, with information filled in as it was on an actual case treated here.

Technical Procedure:

The applicator is loaded in the radium room of the Radiology Department by the radiologist or by a specially trained technician under his supervision and sent to the Operating Room in a special lead container. The loaded applicator is sterilized in the autoclave along with the expanding colpostat handle and the screw driver (the latter being used for removing certain parts of the applicator, adding or removing radium, or making other adjustments which may be required after the situation has been finally evaluated on the operating table with the patient under anesthesia).

* From the Department of Radiology, Central Maine General Hospital, Lewiston, Maine.

CENTRAL MAINE GENERAL HOSPITAL

Department of Radiology

RADIUM THERAPY RECORD

NAME L. T.
ADDRESS R.F.D. #3
CITY Gardiner

HOSPITAL NO. _____
REFERRING PHYSICIAN Dr. J.D.
AGE 73

INTRACAVITARY IRRADIATION

PHYSICAL FACTORS											
Tech	Applicator	Active Length	Filtration		No. Tubes	Total Ra Mg	Diameter of Applicator				
			In Tubes	Additional							
	Ernst		0.5 mm Pt.	2 mm brass 2 mm Pb at ends of colpostals	8 - 10 mg 2 - 5 mg	90					
RECORD OF TREATMENT											
Day	Date	Tech	Region Treated	Applied By Dr.	Time Applied	Removed By Dr.	Time Removed	Mg Hr Per Treatment	Minimum Dose to Lesion		
									Dist of Limit of Disease CM	R Per Treat At Limit	Total R At Limit
1	3/28/51		Cervix	Rock & Miller	10.30 a.m.						
2	3/29/51										
3	3/30/51										
4	3/31/51					Miller & Rock	10.00 a.m.	6435	Paracervical Δ 2 cm	7000	7000

Clark F. Miller M.D.
RADIOLOGIST

Stanley Rock M.D.
SURGEON

Figure 3: Radium Therapy Record.

The operating team consists of the surgeon or gynecologist and the radiologist. To some extent their functions may, if the occasion warrants, be interchangeable, but as a general rule, the radiologist acts as the surgeon's assistant during the dilatation of the cervix and their roles are reversed when the applicator is actually inserted and the vaginal packing applied. Necessary modifications of the applicator to fit varying situations and calculation of dosage are the responsibilities of the radiologist.

The operation is performed under pentothal anesthesia. Check films (pelvis, A-P and lateral) are taken on the second day to demonstrate the in situ position of the applicator.

Removal of the applicator is usually undertaken by the radiologist, and is not conducted as an operating room procedure except under exceptional circumstances. No anesthesia is required in most cases.

Calculation of Dosage:

The exhaustive investigations of Ernst and others have led to a fair degree of accuracy in dosage estimations when this applicator is used. An example of the type of isodose chart which has been worked out is shown in Figure 2. Although not drawn to scale,

point A is meant to represent the "sensitive spot" in the paracervical triangle with a radiation tolerance limit of between 6000 and 8000 gamma roentgens. It lies 2 cm. above the fornix and 2 cm. lateral to the uterine canal. Point B lies 5 cm. from the midline at the level of A, and approximates the position of the lateral pelvic wall (and hence the node-bearing areas).

The amount of radiation reaching these points can be determined from the graph shown in Figure 4. This particular graph has been calculated for 8000 mg. hr., which certainly represents the upper limit of safety for one application. When lesser dosages are used, the proportional distribution of the radiation can be determined from this graph. Although they are far from representing an academic standard of accuracy, the gamma roentgen doses thus obtained in any individual case are probably sufficiently approximate to be of practical value. Much greater accuracy in estimating and recording dosage will, we hope, become possible in the future; but at least this method represents a step in the right direction, in that it leads us away from the undesirable habit of thinking in terms of milligram-hours rather than gamma roentgens when assessing the actual dose received by the tissues.

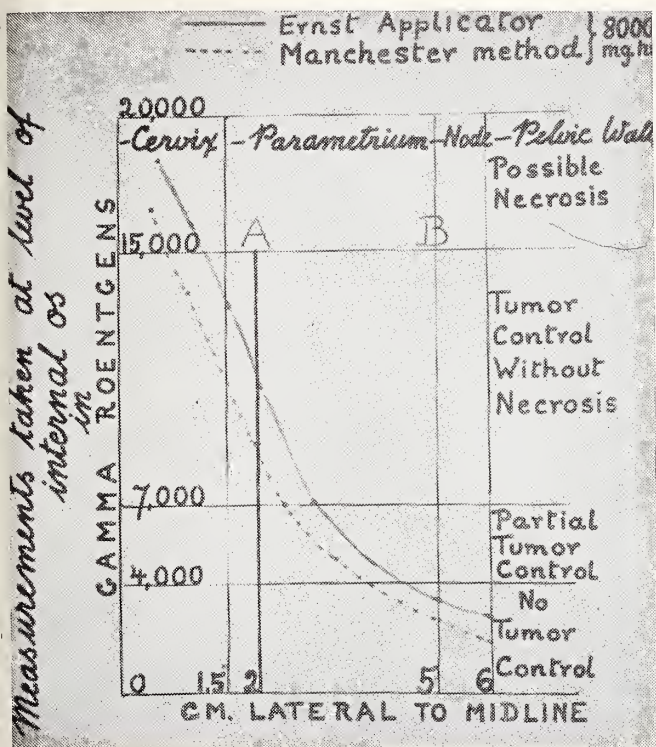


Figure 4: Modified from Clinical Therapeutic Radiology, W. B. Saunders Co.

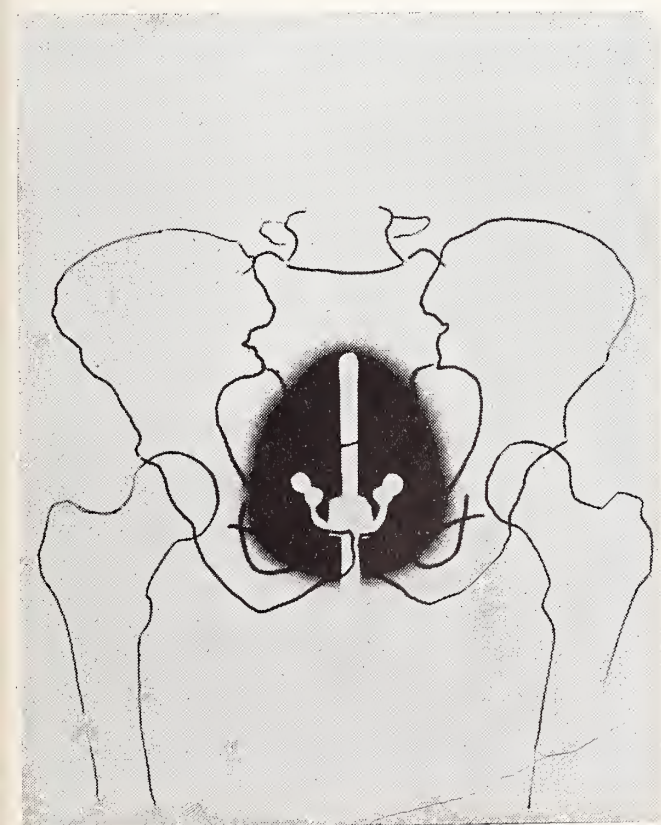


Figure 5: Autoradiograph of loaded applicator, antero-posterior projection. (See text)

An interesting representation of the dosage distribution in the pelvis was obtained by the method

shown in Figure 5. It should be clearly understood that this is meant as a graphic illustration rather than an accurate record of the radiation spread over the pelvis. A cut-out was made in a 14 x 17 film in such a way as to accommodate the loaded Ernst applicator, which was left in place for five minutes in the dark room. The film was then developed, and superimposed over a cleared film on which the pelvic outline had been sketched diagrammatically. The applicator occupies the same position within the pelvis as it would in an actual patient. The black fogging of the film represents the actual "throw-out" of the radiation around the applicator. Because of the great penetrating power of the gamma rays, the tissue absorption in the patient can be largely discounted, and we can therefore assume that a similar type of radiation spread occurs in actual practice. The pelvic walls are thus seen to be within reach of an effective dose of radiation.

Figure 6 illustrates, by the same principle, one of

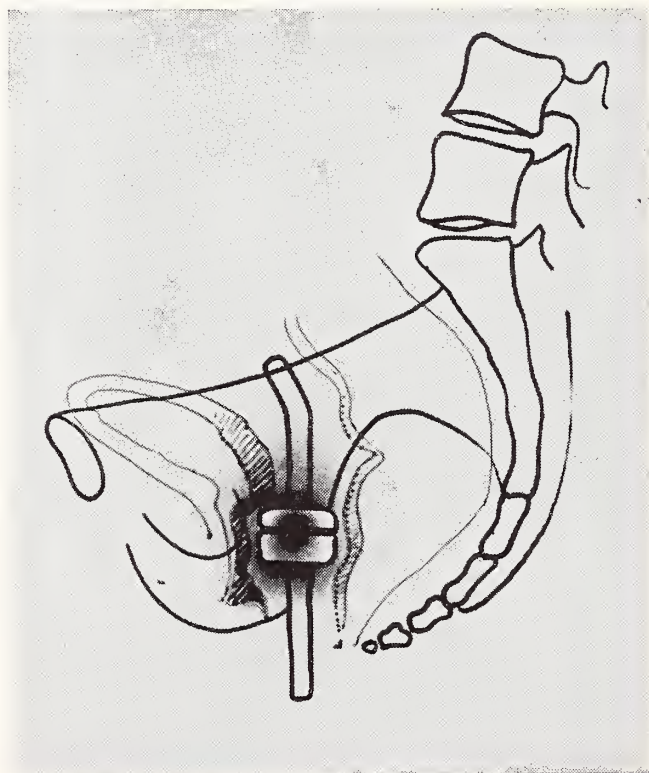


Figure 6: Autoradiograph of loaded applicator, lateral projection. Note protection of bladder and rectum. (See text)

the desirable features of this applicator which has not been mentioned. The anterior and posterior ends of the colpostats are shielded by 2 mm. of lead. This will not completely block the radiation, of course, but will lessen it to a degree which will afford a measure of relative protection to the sensitive bladder and rectum. In this case the autoradiograph of the applicator was obtained with one minute of exposure, in order to show more clearly the "white" unfogged patches

in the vicinity of the bladder and rectum due to the lead shielding incorporated in the colpostats.

In conclusion, it should be said that during the six months since the Ernst applicator was obtained we have treated 14 cases of carcinoma of the cervix. It is of course impossible to do more than assess the *technical* practicability of the instrument at this stage, but because we have encountered a wide variety of anatomical and pathological situations, we can at least say that it satisfies the following requirements for an "ideal" cervical applicator.

- (1) It is mechanically simple.
- (2) It is clinically practical.
- (3) It is easy to apply and to remove.
- (4) It possesses relative flexibility.

- (5) It is a single unit, combining the intrauterine tandem and colpostats in such a way as to assure accurate and constant spacing of the radium units.

BIBLIOGRAPHY

1. Ernst, Edwin C.: Improved methods of intravaginal roentgen and radium therapy in carcinoma of the cervix. *Radiology*, October, 1947, 49, 425-28.

2. Ernst, Edwin C.: Probable trends in the irradiation treatment of carcinoma of the cervix uteri with the improved expanding type of radium applicator. *Radiology*, January, 1949, 52, 46-62.

3. Ernst, Edwin C.: Intracavitary radium for cancer of the cervix. *Clinical Therapeutic Radiology*, Nelson, 1950, Portman, U. V., editor.

PREOPERATIVE AND POSTOPERATIVE DISORDERS OF THE VENOUS SYSTEM IN OBSTETRICAL AND GYNECOLOGICAL PATIENTS*

THEODORE C. BRAMHALL, M. D., Portland, Maine**

In the discussion of the problem of preoperative and postoperative disorders of the venous system in gynecological and obstetrical patients, one is concerned chiefly with the problem of venous thrombosis. While this problem is generally considered one for the general surgeon, it is of equal importance to the gynecological surgeon and obstetrician, because he is dealing with patients 20% of whom suffer from circulatory stasis as a result of varicosities in the pelvis and extremities. This condition contributes to the high incidence of vascular thrombosis which is variously estimated to occur in 0.7%-3.4% of all gynecological cases and in 0.6%-2.1% of obstetrical cases.

During the past decade there has been much controversy as to the relative merits of anticoagulants versus ligation therapy for postoperative phlebitis. As 95% of all pulmonary emboli can be traced to the veins of the legs, many writers have advocated the routine interruption of the femoral veins in phlebitis as a prophylaxis against pulmonary embolism. Others have shown equally good results by the use of anticoagulant therapy. Most surgeons today seem to favor the middle ground, using anticoagulant therapy—followed by surgery in resistant cases.

Dicumerol was first made available in 1941, early ambulation became generally practiced about 1945.

CHART 1
HYSTERECTOMY

	Total	'41-'45	Phlebitis '45-'50	'41-'50	%	Pulmonary Infarcts	%
Abdominal Complete	510	2	6	8	1.6	1	
Abdominal Supra-vaginal	67		1	1	1.5	1	
Vaginal	157		3	3	1.3	0	
Wertheim	14		1	1	.8	1	
Wertheim with Glands	8						
	756	2	11	13	1.7	3	.4

OBSTETRICS

Cesarean Section	179	2	5	7	3.	2	1.1
Vaginal Delivery	1667	5	16	21	1.3	3	.18
	1846	7	21	28	1.5	5	

* Read at the Meeting of the Maine Chapter, American College of Surgeons, Belgrade Lakes, June 20, 1951.

** Gynecology Service, Maine General Hospital, Portland, Maine.

In 1941 I first began to treat postoperative phlebitis with anticoagulant therapy (following this same middleground course), and it is from a group of routine hysterectomies, Caesarian sections, and vaginal deliveries among private patients that the following analysis has been made. The period of study includes all patients in these categories in the years 1941 through 1950. I have divided this analysis into two 5-year periods, to determine if possible the efficacy of early ambulation as was practiced in the second five-year group.

Chart I shows an analysis of the hysterectomy and obstetrical groups. In the hysterectomy group there were 756 cases representing all types, with a total incidence of 13 cases of phlebitis, or 1.7%, and 3 cases of pulmonary infarcts or 0.4%. In the obstetrical group, there were 1846 deliveries, with 28 cases of phlebitis, or 1.5%, with 5 pulmonary infarcts, or 0.18%. In the 5-year period analysis, in the 1941-1945 period of the surgical group, there were 2 cases of phlebitis against 11 in the 1945-1950 period — an increase of 9 cases. In the obstetrical group, for the years 1941-1945, there were 7 cases of phlebitis as against 21 cases in the 1945-1950 period—an increase of 14 cases. There were no deaths due to embolic phenomena.

The incidence of phlebitis in this analysis is essentially the same as that reported in most series. However, it will be noted, that there is a marked increase of phlebitis in the second 5-year period (that employing early ambulation). Probably the most important factor in this apparent increase in incidence is the acuity of diagnosis in the study of the postoperative patient. Lameness in the calf of the leg, so frequently complained of by patients, is no longer regarded as a "lame muscle," but is treated in the light of its true significance. Early ambulation was originally advanced as a means of decreasing the incidence of postoperative phlebitis, but in view of these statistics, we must concur in the findings of others, that, while it offers certain advantages to the postoperative patient, it fails in this respect.

Chart II: The cases of postoperative phlebitis have here been broken down into their anatomic locations. There were two cases of iliac thrombosis and 42 cases of femoral thrombosis. In the one case of iliac thrombosis following Wertheim hysterectomy for cancer of the cervix, a pulmonary infarct occurred before Dicumerol had brought the prothrombin time to a satisfactory level, but the patient was controlled with Heparin therapy. In the second case of iliac thrombosis, following an uncomplicated vaginal delivery, the patient was satisfactorily treated with Dicumerol alone. In this case, there was extreme swelling and pain in the affected extremity, which

persisted for several weeks. As this case occurred at a time when lumbar sympathetic injection with novocaine was in its infancy, I could not find anyone willing to undertake this procedure. Today, I am sure that this patient's post-phlebotic course would be much shortened by this method. Lumbar sympathetic injection should not be used when a patient is under anticoagulant therapy because of the danger of retroperitoneal hæmorrhage. Several deaths have followed this procedure.

CHART 2

	Phlebitis Femoral	Iliac	Pulmonary Infarcts
Hysterectomy	12	1	3
Cesarean section	10		2
Vaginal delivery	20	1	3
	42	2	8

Chart III shows an analysis of the age groups of occurrence of phlebitis in decades. The highest incidence, it will be noted, occurs in the 30-40 year age group. Phlebitis is not a respecter of age and does not occur only in the aged as many have been led to believe.

CHART 3

AGE GROUP

20-30	30-40	40-50	50-60
14	18	6	2

Chart IV is of interest because it shows the postoperative day of occurrence of phlebitis, and it will be noted that between the 8-10th days occurs the highest incidence. This study was stimulated by my desire to determine the earliest safe discharge date for postoperative and postpartum cases. It would appear from this analysis that, as far as the safety from the danger of phlebitis goes, patients should not be discharged before the 10th postoperative or postpartum day.

Chart V is an analysis of the pulmonary infarct cases and shows the postoperative day upon which phlebitis and the pulmonary infarct occurred. In only 2 cases was the diagnosis of phlebitis made before the occurrence of the infarct. In 3 cases no evidence of phlebitis could be determined. In 5 cases pulmonary infarction occurred after discharge from the hospital. The longest delay in the occurrence of pulmonary infarction following surgery was six weeks. This shows that pulmonary infarcts may occur several weeks following surgery or delivery.

CHART 4

PULMONARY INFARCTS

POSTOPERATIVE DAY OF OCCURRENCE

<i>Following Surgery</i>	Total	Phlebitis	Infarct
Complete hysterectomy	1	42	42
Supra-vaginal hysterectomy	1	12	11
Wertheim hysterectomy	1	15	17
<i>Following Delivery</i>			
		0	16
Vaginal delivery	3	10	10
		0	8
Cesarean section	2	0	16
		3	8

CHART 5

DAY OF ONSET

1	2	3	4	5	6	7	8	9	10	11	12	13
2	2	2	4	2	1	1	5	1	3	1		1
			14	15	16	17	18	19	20			
			1	1					1			

Chart VI: In this chart I have endeavored to combine the statistics of the occurrence of phlebitis and pulmonary emboli. These statistics are again arranged in 5-year periods: 1941-1945 and 1945-1950. In the first group there were 9 cases of phlebitis and 5 of pulmonary emboli; an incidence of pulmonary emboli to phlebitis of 55%. In the second group there were 32 cases of phlebitis, with only 3 pulmonary emboli; a ratio of only 9%. These figures are sig-

nificant in that they show that the occurrence of pulmonary emboli may be decreased by the early recognition of phlebitis and early institution of anticoagulant therapy. It is just as important, when one makes daily rounds on the postoperative or postpartum patient, to examine the legs for evidence of early phlebitis as it is to examine the abdomen for evidence of peritonitis, intestinal motility, or the height of the fundus.

CHART 6

	'41-'45		'45-'50		
	Phlebitis	Emboli	Phlebitis	Emboli	
Hysterectomy	2	2	11	1	
Cesarean section	2		5	2	
Vaginal delivery	5	3	16	—	
	9	5	32	3	55% 9%

DIAGNOSIS

It is now our practice to inquire for pain in the calf of the legs and examine the legs daily. If there is tenderness in the calf of the leg, and a positive Honan's sign, anticoagulant therapy is started. Our therapy has been to give 300 mg. of Dicumerol at once, 200 mg. the second day, and thereafter to determine the dosage by the daily prothrombin time. We endeavor to keep the prothrombin time below 30% of normal. At times it is difficult to obtain the desired result, since the prothrombin time will frequently rise abruptly during careful administration

of Dicumerol and it is during this rebound period that thrombosis may be precipitated. Likewise, if the prothrombin time falls below 10%, a severe hæmorrhage may occur. The affected leg is bandaged (upon diagnosis) and the patient is kept in bed until the prothrombin time has been satisfactory for three days. Dicumerol administration is continued for two weeks in sufficient dosage to keep the prothrombin time below 30%. On discharge from the hospital, it is recommended that the leg be supported by either an Ace bandage or a properly fitting elastic stocking

until all pain and swelling have been absent for two weeks.

Pulmonary emboli in this group have been treated with both Dicumerol and Heparin. Dicumerol is started immediately upon diagnosis and the above mentioned course of treatment is followed. Heparin is started simultaneously, with the administration of 50 mg. intramuscularly every six hours until the prothrombin time has been brought under 30% by means of Dicumerol, when the Heparin is stopped. In resistant cases that continue to have emboli, and in patients who are throwing off septic emboli, one must consider ligation of the femoral vein, if the emboli originate in the leg, or (if in the pelvis) vena caval ligation, with or without bilateral ovarian ligation,—depending upon whether or not the patient has had a bilateral oöphorectomy. In this series of cases we have, fortunately, not been faced with the need for ligation therapy.

In prophylactic therapy against phlebitis we use early ambulatory treatment but in a different form than that employed in most of this series. During most of this 5-year period, early ambulation was interpreted to mean getting out of bed the day following surgery or delivery, and sitting in a chair, as the patient desired. We now allow the patient out of bed but insist upon actual ambulation, without sitting, crossing of legs, or having pillows to support the legs, for seven days. In those patients having large varicose veins of the extremities, the legs are bandaged, and kept bandaged, during the entire hospitalization. In the obstetrical group support of the legs, preferably by means of elastic stockings, is required during the entire pregnancy among patients having varicose veins. While many men practice ligation of veins during the antepartum period, I have not done so, but have preferred to treat the veins supportively during the pregnancy, and if necessary, ligate and inject those needing such therapy after involution had taken place. Most patients who have used supportive therapy during their pregnancy will not need ligation following involution. In varicose veins of the vulva, which can be very distressing during pregnancy, I have, in a considerable number of cases, used injection therapy with gratifying results. However, many

authors feel that, since the veins of the vulva have no valves, it is possible for the thrombus initiated by injection to propagate and become the cause of an embolus.

Patients who give a history of phlebitis or embolic phenomena from previous deliveries or surgery we treat prophylactically with anticoagulant therapy, starting Dicumerol within 24 hours following surgery or delivery and keeping the prothrombin time below 30%. There were six such cases included in this group, two of whom had had previous pulmonary infarcts, and four with histories of previous phlebitis. Of the latter, one patient had had phlebitis following three successive deliveries. In none of these cases did phlebitis occur following anticoagulant therapy.

We now use anticoagulant therapy in all patients showing varicose veins of the extremities and pelvic vascular congestion, the therapy being started on the first postoperative or postpartum day. It is too early to include the results of this therapy in this series.

COMPLICATIONS

In two patients being treated prophylactically with Dicumerol, one, following hysterectomy, developed postoperative vaginal bleeding on the tenth postoperative day. Dicumerol was withdrawn and vitamin K administered, followed by the cessation of bleeding in 24 hours. In the second case, on the eighth postpartum day following Caesarian, the uterus enlarged, due to intrauterine hæmorrhage, but bleeding was controlled by withdrawal of Dicumerol, administration of vitamin K, and blood transfusion.

CONCLUSIONS

A small but significant number of cases has been studied relative to the occurrence of phlebitis and embolic complications following gynecological surgery and delivery. Anticoagulant therapy was used throughout in the treatment of this condition. Early diagnosis of phlebitis with prompt, adequate treatment should decrease the incidence of pulmonary infarction. This analysis offers nothing new, but merely substantiates the results of other in this field.

CHEST INJURIES*

LLOYD BROWN, M. D., Bangor, Maine

In this age of rapid travel severe injuries of the chest are becoming more frequent and more serious. The physiological effect of these injuries is often more far-reaching than is the obvious anatomical

damage. To discuss each type of injury which may occur to the chest would take more time than is available. However, an understanding of the principles involved makes it possible to treat all such injuries intelligently. We shall, therefore, attempt to discuss the several types of physiological abnormalities which

* Read at the Meeting of the Maine Chapter, American College of Surgeons, Belgrade Lakes, June 20, 1951.

occur and to point out in what way they can be best corrected.

The principal functions of the cardio-respiratory system are those of supplying oxygen to the tissues and removing carbon dioxide from them. Any injury to the chest reduces these functions and may render the patient's condition precarious when combined with other injuries. The severity of a chest injury may be overlooked in the presence of other more obvious injuries such as broken legs or craniocerebral injuries. It is important, therefore, in evaluating any individual who has sustained severe trauma that the whole patient be considered. Frequently in preparing such a patient for operation one of the most important steps is to restore to normal function the cardio-respiratory system. Shock which must be relieved prior to operation may be caused more by disturbances in the physiology of the thoracic organs than by pain or loss of blood.

Fractured ribs often occur in conjunction with other injuries and may thus be neglected. In one series of multiple rib fractures, 60% had associated injuries. Neglecting such fractures may be a serious mistake. For multiple fractures of ribs in themselves have been shown to have a mortality of up to 10.4% and pulmonary complications in 66%. Such fractures should always be regarded with respect.

Treatment will be taken up later but we feel that it is important to mention the wide-spread practice of strapping the ribs. Though there may be some relief of pain from binding fractured ribs tightly, the decrease in aeration of the lungs which occurs leads to the accumulation of secretions, atelectasis, and pneumonia. These complications are more serious than the fractures themselves. Strapping the ribs in normal individuals has been shown to reduce the vital capacity as much as 22%. In a patient with an already reduced vital capacity, this may be serious. An extreme case is on record where with tight strapping of the chest bilateral edema of the legs and ankles developed which disappeared only after removing the strapping. A far more effective method of relieving the pain is intercostal nerve block. If due to multiple fractures a flail chest with paradoxical motion results and breathing is hampered, elevation and stabilization of the ribs may be achieved by grasping the rib with a towel clip or inserting a hook into the sternum and attaching 5 pounds of traction.

Pneumothorax is a frequent complication of injuries to the chest. Whether this be due to the fracture of a rib with penetration of the lung, rupture of an emphysematous bleb, or extensive perforation of the chest wall, the underlying principles of treatment are the same. Normal function of the heart and lungs must be restored. In tension pneumothorax air leaks into the pleural cavity on inspiration but fails to

escape on expiration. Tension increases in the pleural cavity till the lung is completely collapsed and the mediastinal structures are pushed toward the uninjured side. This embarrasses the intact lung and angulates the great vessels, interfering with the return of blood to the heart. It cannot be tolerated long. The tension must be relieved. Large open, or sucking, wounds of the chest wall allow air to enter the pleural cavity from the outside and will rapidly be fatal because of collapse of the lung and mediastinal flutter. The importance of closing the chest wall and draining the pleural cavity is well known.

Not only may air enter the pleural cavity but blood, either from laceration of an intercostal artery associated with a fractured rib, or from injury to the lung itself. The pressure in the pulmonary arterial system is from 30 to 40 mm. of mercury. Bleeding from small blood vessels will usually stop spontaneously as the vessels retract into the lung. An intercostal artery will often require ligation. Large pulmonary vessels will bleed profusely and will exsanguinate the patient before help can arrive.

Injuries to the heart if not so severe as to cause immediate exodus may result in filling of the pericardial sac with blood and resulting cardiac tamponade. This condition is manifested by falling arterial blood pressure, rising venous blood pressure, and a "small quiet heart," the so-called triad of Beck. Such a situation renders aspiration or drainage a necessity.

Emphysema of the chest wall and of the mediastinum is a frequent complication of chest injuries. Air escapes into the soft tissues giving rise to the characteristic crackling sensation on palpation of the chest wall. This in itself is seldom serious though the amount of air in the chest wall may be large and may extend from the neck to the groin. However, when the air leak comes from a ruptured bronchus, pressure on the mediastinal structures may obstruct respiration and venous return. Drainage of the mediastinal spaces at the suprasternal notch will produce dramatic improvement. One complication well worth remembering is gastric dilatation. This may cause upward pressure on the diaphragm and respiratory difficulty. It may also result in regurgitation and aspiration during anesthesia.

The condition known as "wet lung" is common in all cases of serious trauma. Previously it has been called by a number of names including traumatic pneumonitis, patchy atelectasis, bronchopneumonia, pulmonary congestion. It is seen frequently with severe injuries of the chest, craniocerebral injuries, and abdominal injuries. It is the most common complication of injuries to the chest and it is, therefore, important that it be watched for and understood. When a patient with a chest injury fills up with fluid it was once thought that his prognosis depended on whether

or not he was able to absorb this fluid. This is a misconception which can well lead to an unhappy termination. Such fluid must be coughed up.

The factors causing "wet lung" can be grouped under forces which cause abnormal amounts of fluid to appear in the respiratory tract:—reflex hypersecretion occurring with any trauma, local injury, increased respiratory effort, anoxia, and forces preventing removal of fluid from the respiratory tract. Under normal circumstances secretions are removed from the tracheobronchial tree by the act of coughing. An effective cough requires deep inspiration, closure of the glottis, tensing of the abdominal muscles to increase the intrathoracic pressure, and a sudden opening of the glottis. In the presence of injury these factors may be depressed. Another common cause of pulmonary complications is that of over-sedation. These patients are in extreme pain and the temptation is strong to administer large doses of narcotics. The cough reflex is thus further hindered. The pain should be relieved in other ways.

"Wet lung" causes anoxia. This increases the shock and may cause cerebral manifestations. The amount of secretion within the pulmonary tree is increased, leading to atelectasis, tracheo-bronchitis, or bronchopneumonia once a common cause of death.

The signs and symptoms are characteristic. These individuals develop a moist cough which often becomes productive. However, it is a weak cough and the amount of production is scanty. The moisture persists in spite of production. The patients remain dyspneic and on auscultation numerous bronchial rales are audible. X-ray of the chest in the early stages may show little or may show small areas of patchy atelectasis. Later gross atelectatic and pneumonic areas are common.

Treatment of all chest injuries is similar. In the first place the patients should be carefully examined to determine the extent of the injury and the abnormal physiology which is present. If they are dyspneic or cyanotic, oxygen should be administered. Breathing is easier and cough more effective in Fowler's position. If there is evidence of air under tension in the pleural cavity by physical examination or by X-ray, this should be removed. A needle inserted between the ribs is enough in an emergency. It is preferable to use a pneumothorax machine so that the tension within the pleural cavity can be measured. Recurrent pneumothorax with tension is treated by repeated aspirations or better by the insertion of an intercostal catheter which can be connected to an under water trap. This is a very simple and safe arrangement and is to be recommended in any case where there is delayed expansion of the lung. Complete re-expansion of the lung is one of the important goals. A dilated stomach should be emptied with a Levine tube. Sedation should be given in small

amounts. Clearing the tracheo-bronchial tree is all important. Ineffective cough is due to pain. Blocking the intercostal nerves to the fracture site relieves pain. The results from this procedure alone may be dramatic. We have seen patients who were cyanotic, dyspneic, and appeared practically moribund take a new lease on life immediately after an intercostal block was performed. Respirations become slow and deep. Cough becomes effective raising large quantities of sputum. The technique is easy. The intercostal nerves run in a groove just behind the inferior edge of the rib. The intercostal muscles are so arranged that the inner layer lie deep to the neurovascular bundle and the external layer lie superficial, leaving a fairly well demarcated compartment. It is not necessary to inject the nerve proper to obtain a satisfactory block. If an intramuscular needle is inserted just through the external intercostal muscle and 5 c.c. of 2% Procain is injected a satisfactory block will result as the material diffuses around the nerve. More lasting anesthesia can be achieved with eucapin pontocaine mixtures or with 2% metycaine. One should always block two segments above and two segments below the segment of injury.

If the patient is still not able to raise his secretions, his cough may be assisted by an intratracheal catheterization. An ordinary #16 French urethral catheter, with a few extra holes cut in its distal end, is inserted through the nose. The tongue is drawn forward. With the patient sitting in Fowler's position, the catheter is advanced until it lies just above the glottis. The patient is then told to draw a deep breath. This opens the vocal chords and the catheter is inserted into the trachea. Cocainization of the throat is not usually performed as it is desirable for the catheter to stimulate cough. However, in difficult cases topical anesthesia may be necessary. With the catheter in the trachea, suction is applied. By positioning the patient first on one side and then on the other or by turning the head and the chin from one side to the other, it is possible to insert the catheter into first the right main bronchus and then the left. A satisfactory cleaning of the tracheo-bronchial tree can usually be accomplished. The patient usually gags, chokes, and becomes cyanotic. But the result is excellent and the threat that the procedure is to be repeated is often very effective in making the patient cough more efficiently subsequently. If the aspiration is not satisfactory, bronchoscopy should be performed. This should of course be done when there is any question of foreign body. It can well be done in the patient's bed.

In the presence of anoxia there is often profuse secretion into the bronchial tree which recurs even after an effective aspiration. Under these circumstances positive pressure oxygen will sometimes dry up the bronchial tree. It is not advisable when shock

is present for the increase in the intra-pulmonary pressure will obstruct venous return and may aggravate the shock.

Hemothorax has already been mentioned. It has been argued that blood within the pleural cavity is well absorbed and that it is unwise to introduce a needle into it lest infection be carried into a fertile culture medium. This danger has been over-emphasized and particularly in the presence of antibiotics it is slight. On the other hand blood in the pleural cavity results in a laying down of fibrin over the pleural surfaces which will cause adhesions and decrease pulmonary function. When the hemothorax is large, the lung may be so collapsed as to be markedly crippled. Infection may be introduced through a rent in the lung. Then a pyohemothorax will result. Most authorities feel that all blood possible should be removed from the pleural cavity even if repeated aspirations are necessary. If the effusion continues to occur one may be forced to insert an intercostal catheter led into an under-water trap to effectively remove the bloody fluid and expand the lung. In cases where the hemothorax has become clotted and cannot be removed or where it has become infected and a pyohemothorax has developed, it may be necessary to

perform a thoracotomy and remove the tough clot which imprisons the lung and prevents it from expanding. This procedure, decortication, became popular during the past war and is often very effective. More recently the development of "streptokinase-streptodornase mixture" has made possible the enzymatic removal of fibrin, clotted blood, and purulent material. This agent when introduced into the pleural cavity, liquifies clotted blood and thickened purulent secretions which may then be aspirated with a needle. It holds great promise.

In summary a brief review of the physiological abnormalities of the cardio-vascular system which occur with chest injuries has been given. The importance of examining the entire patient has been stressed. The appropriate measures for restoring the cardio-vascular system to normal efficiency have been mentioned, in particular intercostal nerve block to relieve pain of fractured ribs as opposed to strapping the chest, clearing the airways by urging coughing, intratracheal aspiration, or if necessary bronchoscopy. Aspiration from the pleural cavity of air and blood in order to secure prompt and complete expansion of the lung has been emphasized.

SURGICAL INJURIES OF GENITO-URINARY TRACT*

JOSEPH MEMMELAAR, M. D., Bangor, Maine

In this modern era which has popularized radical surgery of the pelvis, ureteral injury is a relatively common occurrence. There have been over 800 recognized cases reported in the literature. There have also been ureteral injuries which have gone unnoticed. In one clinic a pathologist was requested to pay strict attention to the ureters in post mortem examinations of all women who had undergone pelvic surgery, and six cases were discovered in which ureters had been ligated.

This injury is particularly found in the female patient and is usually associated with the radical hysterectomy or during the removal of large fibroids or ligamentous cysts. Common injuries which occur during this procedure include unilateral or bilateral ligation, transection of the ureter, devitalization of the ureter, or, as in a recent case which I personally observed, a transection of the left ureter with ligation of the right ureter. Devitalization of the ureter occurs more frequently with the Wertheim procedure where sometimes extensive mobilization of the ureter is effected and the blood supply is seriously diminished.

Common sequelae of ureteral injury are uretero-vaginal and uretero-abdominal fistulae.

Recognition of ureteral injury may come immediately or during the postoperative period or, as has already been stated, at autopsy. Occasionally the urologist may find a strictured ureter some time later when pyelograms are made. The diagnosis of a bilateral ureteral injury should be considered in all patients who suffer from urinary "suppression" immediately following pelvic surgery.

In consideration of the treatment of such injuries, prevention is of prime importance. This is true because ureteral injury is avoidable in all except the Wertheim procedure which should stand in a group by itself because of the nature of the operation. There is an unwritten law apparently among surgeons which does not permit inlying ureteral catheters preliminary to major pelvic surgery, yet the most experienced have not always been innocent of this preventable accident. If a ureter has been ligated, the ligature should be removed especially during the convalescent period, and the constricting areas dilated immediately and subsequent to discharge from the hospital. If the ureter has been devitalized it should be

* Read at the Meeting of the Maine Chapter, American College of Surgeons, Belgrade Lakes, June 20, 1951.

re-implanted in the bladder after the devitalized portion has been removed, or if this is not expedient, uretero-enterostomy or uretero-cutaneous anastomosis should be performed. In the event of transection of the ureter, immediate anastomosis should be done in which I would use 0000 ophthalmic suture and this I choose to do over a T-tube which has been placed into the ureter through a longitudinal incision just proximal to the transection. It is, I believe, essential that the T-tube be small enough so that when the site of the anastomosis swells it does not become ischemic. The catheter is then brought out extraperitoneally through a stab wound laterally. Chemotherapy or antibiotics are indicated in small doses as a prophylactic measure.

The T-tube satisfies three requirements of ureteral repair: (1) it provides drainage for the kidney, (2) it splints the area of anastomosis so that kinking is obviated, (3) it establishes drainage for the retroperitoneal area.

Should the injury become evident only after pelvic abscess has formed, drainage of the abscess should be first instituted and a sinus should be allowed to develop. After the tissue has approached a normal state, operation should then be performed with the first objective of preserving renal tissue whenever this is possible. Therefore, I would suggest a re-implantation of the ureter into the bladder if this is feasible or a uretero-enterostomy or if necessary a uretero-cutaneous anastomosis. If none of these are feasible and the opposite kidney is functioning well a nephrectomy may be considered. A recent case history in which I acted as a secondary principal will illustrate the problem. This was a 50-year-old female who was subjected to a hysterectomy for early carcinoma of the cervix. During the operative procedure the surgeon became aware that he had transected the left ureter at about the pelvic brim. He anastomosed the ureter with interrupted 0000 catgut after first pushing a ureteral catheter through the distal portion of the ureter into the bladder and placing the opposite end of the catheter through the proximal portion of the ureter to a point near the kidney pelvis. No drain was placed in this area. The operation was completed and the patient was returned to the ward in good condition.

For the first few days the patient seemed to pass urine with little difficulty and in adequate amounts. However, urinary output abruptly decreased and for about two days she was anuric, during which time she developed an azotemia and toxic symptoms of uremia. She had received sulfathiazol and the question of a toxic nephrosis with anuria was considered. Because of a rise in her temperature and generalized tenderness over the abdomen, I felt the left side should be explored and at least a drain placed at the anastomotic site. This was done and there was evi-

dence of extravasation. A longitudinal incision was made in the ureter proximal to the anastomosis, which was still intact, and a T-tube placed in the ureter with the one arm extending through the anastomosis. The original ureteral catheter was no longer in the ureter but had worked its way spontaneously into the bladder and was pulled out of the bladder during this procedure. The ureter proximal to the anastomosis was somewhat dilated and there was little doubt but that the anastomotic ring was an obstructive factor. This cast a different light and also added a new suspicion to the problem of her anuria. It had been assumed that the right ureter had been functioning but now it appeared that there was good reason to suspect that the left ureter only had been functioning through the catheter, and that when the catheter slipped into the bladder anuria developed. Therefore the right ureter may not have been functioning at all. The operator stated that he was quite sure that he did not injure the right ureter. However, the following day the patient was cystoscoped and an attempt was made to pass a catheter in the right ureter but obstruction was met at about ten centimeters and could not be passed. An operation was then performed on the right side. A dilated ureter was found which was followed down to a complete stricture which was caused by a ligature. The tie was cut, a longitudinal incision was made in the ureter proximal to the point of ligation and a T-tube was inserted after the ureter had been thoroughly dilated. The catheters were removed in about ten days. The patient had a very stormy convalescence but has now recovered completely. Pyelograms taken three months later reveal normal functioning and appearing kidneys and ureters.

SUMMARY

I have briefly presented the problem of injuries which may occur to the ureter during the course of pelvic surgery. The problem of recognition and treatment have been discussed.

Stress has been placed on the fact that this type of injury in most cases is preventable by the use of indwelling ureteral catheters which have been placed just prior to operation.

Finally a case history has been presented which demonstrated two types of injury and the treatment of them.

REFERENCES

- McIver, R. B.: Injuries to the Ureter and Their Management. *J. A. M. A.*, 124:1116-1120, 1944.
- Moore, T. D.: Management of Surgically Traumatized Ureter.
- Sisk, I. R.: Operative Injuries of the Ureter. *Surg., Gynec. and Obst.*, 60:857-860, 1935.

PROBLEMS IN FLUID AND ELECTROLYTE BALANCE IN EVERYDAY HOSPITAL PRACTICE*

WILLIAM K. BARTON, M. D., and ROBERT L. OHLER, M. D.**

In recent years, the physiology of intra and extracellular fluid and electrolytes has been presented in several excellent review articles.¹⁻⁵ At the present time, there is available adequate information upon which to base a rational approach to most fluid problems arising in surgical patients. It is the purpose of this paper to discuss relatively simple methods of management which have been found useful on the Surgical Service of a Veterans Hospital, citing cases illustrative of the general principles involved.

Dehydration Without Excessive Loss of Electrolytes

One can anticipate varying degrees of dehydration in acutely ill surgical patients upon their arrival at the hospital. Pre-existing anorexia, nausea, fear, pain and helplessness may cause the patient to limit his fluid intake and become dehydrated relatively quickly.

The following case is an example of dehydration resulting from an illness of short duration:

CASE NO. 1

A 25-year-old man was admitted with a twenty-four hour history of abdominal pain first starting in the periumbilical region and later radiating to his right lower quadrant. The patient vomited three times prior to entry and had taken nothing by mouth except "a few sips of coffee" on the morning of entry. Physical examination revealed fairly typical abdominal findings of acute appendicitis. Clinically, the patient appeared to be extremely dry, with a reddened tongue and dry mucous membranes. White blood count on admission was 35,000 with 95 percent mature polys. This count was rechecked and confirmed. Hemoglobin was 15.4 gms.%. No urine specimen could be obtained although the patient had voided only once in the last twenty-four hours. At operation, an acute suppurative appendix was removed. During the operation, the patient received 1,000 c.c. of five percent glucose in water and an additional 3,000 c.c. of five percent glucose in water during the next eight hours. In spite of 4,000 c.c. of intravenous fluid, this patient voided only 1,000 c.c. of urine in the next twenty-four hour period. Urinalysis next day showed a specific gravity of 1.028.

* Reviewed by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions expressed by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

** Dr. Barton, Assistant Chief, Surgical Service, Togus, Maine. Dr. Ohler, Chief, Medical Service, Togus, Maine.

Provision of 1500 c.c. of water for urinary output and 1,000 c.c. for insensible loss through the skin and lungs in a twenty-four hour period are reasonable adult requirements.⁶ An acutely ill patient may have a fluid deficit of this magnitude when first seen by the surgeon. In Case 1, the patient received 4,000 c.c. of intravenous fluid before reasonable hydration was established clinically, as evidenced by an adequate urinary output. The urine specific gravity of 1.028 suggests that this amount of fluid was not excessive.

Case No. 2 is an example of a patient who, in addition to losing considerable whole blood, failed to drink normally and acquired a large deficit of water.

CASE NO. 2

A 56-year-old man was admitted for his fourth episode of hematemesis from a gastric ulcer. Twenty-four hours prior to admission, he had vomited a small amount of blood and on admission vomited a quart of "coffee-ground material." The patient had not taken anything by mouth for the previous twenty-four hours. He appeared pale and restless. The skin and mucous membranes were dry. Clinically, the patient was not in shock; blood pressure was 130/70. Hemoglobin was 11.6 grams; hematocrit 34 percent. During the first nine hours after admission, the patient received 1,000 c.c. of five percent glucose in normal saline, and 1,000 c.c. of blood intravenously and 240 c.c. of milk by mouth. There was no further clinical evidence of active bleeding. His urinary output during the first nine hours was 75 c.c. Following correction of electrolyte and fluid balance, a gastric resection was performed. Patient's post-operative course was uneventful.

In spite of having received an amount of blood equal to one-sixth of his blood volume, there was no change in hemoglobin or hematocrit twelve hours after admission. It is felt that a large portion of the intravenous fluid given was taken up by the dehydrated tissues, and that the blood received served to replenish the diminished blood volume, leaving little extra water for urinary output or blood dilution. In addition to the loss of blood, tissue dehydration existed because of inability to ingest fluid normally during the twenty-four hours prior to admission.

It should be pointed that in addition to replacing blood, one must also give sufficient fluid to meet the requirement for water and assure a sufficient urinary output. This output usually is a good guide to the adequacy of hydration. The average patient suffers

no obvious ill effects from a short period of dehydration of moderate degree. Unless hydration is attained in a reasonable time, a patient who develops such post-operative complications as vomiting, infection, or ileus is less able to meet his additional problems which are superimposed upon a state of poor hydration.

In the postoperative patient, uncomplicated dehydration is best repaired by oral fluids when feasible, otherwise by intravenous administration of five percent dextrose in water rather than saline. Recent evidence indicates that operation or other acute stress results in a tendency to retention of sodium and loss of potassium.⁸

The kidney attempts to compensate for dehydration by re-absorbing a larger fraction of water from the glomerular filtrate, resulting in oliguria. This decrease in urinary output may upon occasion present a perplexing differential diagnosis between the oliguria of dehydration and of renal disorders. Postoperatively, a dehydrated individual, especially if a transfusion reaction is a possibility, may require cautious administration of considerable fluid before the nature of the problem is known with certainty, as illustrated by Case No. 3.

CASE NO. 3

A 55-year-old male was hospitalized for the fourth time with major gastric bleeding. Following cessation of bleeding, a gastric resection was performed. He received 1,000 c.c. of blood during this procedure. Postoperatively, he voided only 100 c.c. in the first twenty-four hours. During the next twelve hours, the patient received 1,500 c.c. of intravenous fluid but voided only 60 c.c. of urine. At this point, it was

necessary to find the cause of his oliguria. Was it lower nephron nephrosis or dehydration? Clinically, the patient appeared dehydrated; he was thirsty; his mouth and tongue were dry. Catheterization yielded an additional 350 c.c. of urine of 1.012 specific gravity, which was lower than would be expected with dehydration. There was no hemoglobinuria. Blood urea nitrogen was moderately elevated. Cautiously, the patient was given five percent glucose in water intravenously and gradually hydrated. During the next twelve hours, he passed over 1,000 c.c. of urine, and it became evident that dehydration had accounted for his urinary suppression. The BUN returned to normal.

Problems in Excessive Loss of Electrolytes

Vomiting, gastric or duodenal suction, loss of large amounts of fluid from biliary, pancreatic, or other fistulas, and protracted diarrhea result in losses of water and of electrolytes, sodium, chloride, bicarbonate and potassium, in varying proportions. In the absence of sweating, insensible loss of water of 1,000 c.c. is accompanied by negligible loss of electrolyte, but in the presence of moderate sweating or high fever, losses of 1,500 c.c. of water and 35 milliequivalents of sodium chloride may be anticipated. Up to 2,000 c.c. of water and 70 milliequivalents of sodium chloride may be lost in severe sweating. Losses are increased with high environmental temperature, but electrolyte losses are less in acclimatized persons.⁶

Table I shows representative electrolyte concentrations in certain body fluids. The normal kidney can limit excretion of sodium and chloride to a negligible amount when a deficiency of these elements is present in the serum.

TABLE I

	Anions (me./l)		Cations	
	Na	K	Cl-(me./l)	HCO-3 (mm./l)
Gastric	37	15	165	0
Pancreatic	142	7	70	80
Small Intestinal	145	5	120	30
Bile	145	5	90	30

Approximate concentrations of electrolytes in gastrointestinal secretions—adapted from Darrow.¹

Disturbances in the acid-base balance of the extracellular fluid result from a disproportionate loss of sodium, chloride, potassium or bicarbonate. Large losses of gastric secretion commonly result in alkalosis. An important and interesting relationship between the intracellular potassium and extracellular bicarbonate has recently been discussed by Darrow.^{1, 2} A practical application of this relationship is that some cases of metabolic alkalosis originating from loss of chloride in excess of sodium may require po-

tassium as well as chloride before the alkalosis will disappear. Similarly, excessive loss of potassium in such states of hormonal imbalance as Cushing's syndrome or in ACTH therapy results in alkalosis with high serum bicarbonate.

The following cases are illustrative of the type of patient in whom it is necessary to anticipate large losses of electrolyte, so that these losses may be replaced as they occur.

CASE NO. 4

A 70-year-old male was admitted with arterio-sclerotic heart disease and congestive failure, chronic asthmatic bronchitis, and marked pulmonary emphysema. He was digitalized, placed on a low-sodium diet, and treated with penicillin. His cardiac failure and bronchitis improved under this regimen. However, about two weeks following admission, he developed the signs and symptoms of an acute surgical abdomen. His white blood count was 37,400 with 96 percent polys, and his urine specific gravity was 1.032. It was anticipated that dehydration would be a factor in his further management. At operation, acute cholecystitis was found and a cholecystostomy performed. During his first twenty-four hour postoperative period, he lost in addition to 750 c.c. of urine, gastric secretion of 300 c.c., and biliary drainage of 200 c.c., all contributing to excessive loss of electrolyte superimposed upon the effect of a somewhat prolonged low-sodium diet, increased sweating, and a fever of 101 degrees. The only intravenous saline given was to replace known chloride losses. By the next day, serum chlorides were 83 milliequivalents per liter; BUN 31 milligrams percent; hematocrit 45. These values were suggestive of dehydration and electrolyte deficiency. Urinary output for this period was 575 c.c. and contained chloride at a concentration of four grams per liter, which would suggest adequate serum chloride levels. Actually, the patient was deficient in both salt and water and was treated successfully by increasing his urine output with intravenous dextrose and water, replacing specific salt losses with saline and placing him on oral feedings with salt.

Two points can be made from this case. First, that dehydration and electrolyte imbalance were anticipated and consequently under reasonable control. Secondly, cardiac patients who have stabilized on low-sodium diets may soon reach a depleted state if additional losses occur through the gastrointestinal tract or from high temperature and sweating. Dehydration with hyponatremia or hypochloremia, or both, is particularly apt to occur if mercurial diuretics have

been used, or if damaged kidneys are unable to limit salt excretion, in a patient who has been on an extremely low sodium diet.^{9, 10} The urinary chloride measurement cannot be used as a guide to salt requirements in the presence of kidney damage. It should also be emphasized that excessive administration of sodium is to be avoided in cardiac patients.

CASE NO. 5

A 42-year-old male had a subtotal gastric resection for an intractable duodenal ulcer and massive gastrointestinal bleeding. The postoperative course was complicated by a right anterior subphrenic abscess, which was drained leaving a residual duodenal fistula. Fortunately at this time, the patient was able to take fluid and nourishment by mouth, which reduced the need for intravenous replacement therapy. About one month later, the fistulous tract closed rather quickly, only to have another abscess collection develop which again required drainage. The duodenal fistula re-established itself, and at this time the patient was unable to take food by mouth because of vomiting. Additional losses of fluid and electrolytes complicated the problem of replacement therapy and a feeding jejunostomy was performed to provide a means of replacing his gastrointestinal losses and to provide for additional nourishment. The patient made a good recovery and the fistulous tract gradually closed. The maintenance of fluid and electrolyte equilibrium was simplified by the use of the chloride balance sheet described by Scribner of the Mayo Clinic.^{6, 7} All urine, gastric and duodenal drainage collected from this patient were saved over a twenty-four hour period and volumes recorded. They were analyzed daily for chloride content in milliequivalents per liter. A balance sheet was constructed totaling all fluid and chloride intake and output. It was then possible to replace these losses with reasonable accuracy using saline, Amigen and jejunostomy feeding, to which both biliary-fistula and Wangenstein-suction material had been added. The chloride sheet constructed in this case is shown for one day.

TABLE II

8-5-50

INTAKE

OUTPUT

Vol. c.c.	Type of Fluid	meq./L of Chloride	Total me. Chloride	Vol. c.c.	Type of Fluid	meq./L of Chloride	Total me. Chloride
2200	water	0.	0.	925	urine	155.	143.37
1000	5% G in s	154.	154.	2650	Wang.	48.	127.20
500	blood	52.5	26.25	300	bile drain	100.	30.00
1000	N sal	154.	154.	1000	Insensible loss		0.
1000	amigen	35.	35.				
925	Jejunostomy	35.	32.37				
925	Feeding		92.50				
	bile drain	100.					
7550			494.12	4875			300.57

Chloride balance sheet for 1 day—Case No. 3.

CASE NO. 6

A 66-year-old white male with a duodenal ulcer of long standing was admitted on December 19, 1950, following a week of persistent vomiting. He stated that the vomitus had appeared like coffee-grounds in the last twenty-four hours. On admission, there was a loss of skin turgor but mucous membranes were moist. Stool contained occult blood. Admission red blood count of 3.7 million dropped to 2.8 million following hydration. Although he at first appeared to tolerate milk feedings, on the fourth hospital day, 2,200 c.c. of fluid was aspirated from the stomach. For the next eleven days, complete pyloric obstruction was apparently present and continuous gastric suction was necessary. His entire intake of fluid was by the parenteral route. Severe imbalance of fluid and electrolytes was prevented by the use of the chloride balance sheet illustrated in the preceding case. Urine and aspirations were analyzed by the bedside method of Scribner.^{6,7} Serial electrocardiograms provided the only means of controlling the status of serum potassium. Potassium chloride was administered intravenously in amounts of 20 to 40 milliequivalents a day after the seventh day, when lowering of T waves and prolongation of Q-T interval had become apparent. During this pre-operative period of pyloric obstruction, gastric drainage of 1,450 to 4,400 c.c. containing between 120 and 140 milliequivalents of chloride per liter was lost. Urine output varied from 850 to 3,750 c.c. containing from 40 to 114 milliequivalents of chloride per liter. Thus total daily losses of chloride varied from 307 to 442 milliequivalents with fluid losses of up to 6,250 c.c. per twenty-four hours. Fluid was supplied as five and ten percent dextrose in water with enough isotonic saline (containing 150 milliequivalents of sodium chloride per liter) to replenish the previous day's chloride losses. Caloric requirements were met in part by glucose, and nitrogen was given as Amigen (containing approximately 35 milliequivalents of chloride per liter). The BUN dropped from 27 mg./100 c.c. to 12 mg./100 c.c. and the serum chloride rose from 92 me./L to 113 me./L during the first week on this program.

This, we feel, illustrates that the chloride balance sheet provides an adequate and simple safeguard even in the presence of enormous daily losses of fluid and electrolyte. During the period before potassium therapy was instituted, CO₂ combining power rose from 65 volumes percent (28 mm./1) to 71. volumes percent (32 mm./1) and serum chlorides fell to 94 milliequivalents per liter. Administration of potassium chloride, 40 milliequivalents, for two days was followed by prompt return of these values to 58 volumes percent (26 mm.) of CO₂ and 103 milliequivalents of serum chloride. Although not of serious proportions, this illustrates that significant losses of potassium do

occur in gastrointestinal secretions⁵ and serves as an example of return to normal acid-base equilibrium with replacement of potassium.²

Lower Nephron Nephrosis

Many patients receive transfusions during their operations, and if oliguria occurs in the early post-operative period, it becomes necessary to differentiate between oliguria of dehydration and that of lower nephron nephrosis. The treatment of each is diametrically opposed.^{11,12} Lower nephron nephrosis results from hemolytic transfusion reactions, hemolysis following use of distilled water in transurethral prostatectomy, crush syndrome, alkalosis from excessive vomiting, burns, and various toxic substances, notably sulfonamides and carbon tetrachloride. An excellent review of this subject is that of Strauss,¹¹ who advocates treatment consisting of 750 c.c. of 15 percent dextrose in water daily in addition to replacement of chloride losses from vomiting. The greatest danger is over-treatment with fluid, especially saline, with death resulting from pulmonary edema.

CASE NO. 7

The following cases are examples:

A 24-year-old male was admitted for the third time with persistent peptic ulcer pain. His two previous admissions had been for perforation of a duodenal ulcer. Following a period of evaluation, a gastric resection was performed, and immediately postoperatively his course was complicated by hypotension for twelve hours. This hypotension was treated by transfusions, and his blood pressure gradually returned to normal levels. By the following day, he was oliguric and BUN was 75 milligrams percent. It was necessary to know the cause of this man's oliguria. Was it from shock, dehydration, or lower nephron nephrosis? The diagnosis in this case was soon established by the finding of hemoglobin in the urine. He was placed on the Strauss regime of 750 c.c. of 15 percent glucose in water daily, plus replacement of gastric losses with an equal amount of normal saline. In spite of this, his course was one of gradual increasing toxicity with death on the twelfth postoperative day. Quite possibly this man's demise was from potassium intoxication. Since the advent of the artificial kidney, its use has proved to be lifesaving in such instances.

CASE NO. 8

A 22-year-old man had a bone graft operation performed on the left tibia March 27, 1950. On April 19, 1950, after receiving 300 c.c. of whole blood of his own type (O, Rh positive), a severe shaking chill occurred accompanied by cramping lower abdominal pain, leg pains, involuntary defecation and vomiting. The amount and character of urine passed during the

next twelve hours is unknown. Vomiting continued. On April 20, 1950, 50 c.c. of dark-amber urine was passed and on the next day none. He was cautiously hydrated with 1,000 c.c. of five percent glucose in saline and 1,000 c.c. of five percent glucose in water. Oliguria persisted, and acute renal insufficiency due to lower nephron nephrosis was suspected. The patient appeared in good general condition. Tongue was moist; blood pressure was 122/70, heart was normal to physical examination; lungs were clear. There was no peripheral edema. The following regime was instituted: Nothing by mouth, careful recording of intake and output of fluids including vomitus, daily determinations of BUN, serum chlorides, CO_2 combining power, and twenty-four hour urinary chloride excretion. Electrocardiograms were taken daily as a guide to serum potassium levels. Anticipated water losses were met with 750 c.c. of fifteen percent dextrose in water a day intravenously, which also provided sufficient calories to minimize breakdown of tissue protein.⁴ Fluid lost by vomiting was replaced by an equal amount of isotonic saline. Strauss¹¹ recommends in addition the use of one-sixth molar sodium lactate or sodium bicarbonate if acidosis occurs. Alkali therapy was not necessary in our patient as he apparently compensated for excessive acid accumulation by vomiting.

On April 24, 1950, urine output had not exceeded 100 c.c. daily; vomiting of small amounts had continued; and blood urea nitrogen was 112; CO_2 combining power, 59 volumes percent; blood pressure 135/90; and electrocardiogram showed tall, peaked T waves in leads 1, 2, V4 and V5. On April 25, 1950, urine output was 200 c.c. and on succeeding days 350, 800, 950, 1790, 1950 c.c. In spite of the high urine output, the BUN remained above 100 until May 2, 1950, when an abrupt fall to 57 took place; a level of 19 milligrams percent was reached on May 9, 1950.

During the period of diuresis, it became necessary to replace chloride lost in the urine with isotonic saline intravenously, since great amounts of electrolytes were lost during this period in spite of the fact that the urine at first was very dilute. For example, on April 30, 1950, urine volume was 1,790 c.c., specific gravity 1.005, and urinary chloride 1.4 grams per liter as sodium chloride. Urine chloride loss then remained low until May 8, 1950, when 2.9 grams per liter was lost and May 9, 1950, when 6.9 grams per liter were excreted. The patient made an uneventful recovery, and three months later no renal abnormality could be detected by usual tests.

Although definite evidence of a mismatched transfusion could not be obtained in this case, it is surmised that a hemolytic transfusion reaction was the etiological factor. This case illustrates a conservative method of handling this problem, which in essence is that of helping the patient to remain alive until the

kidneys recover from this unique, self-limited disorder. The greatest danger to be scrupulously avoided is over-hydration with water or saline, which results in water intoxication or pulmonary edema. If death occurs in the absence of over-hydration it is likely to be from potassium intoxication.

General Considerations of Management

The plan we have found useful for the management of fluid and electrolyte problems is first to attempt to discover those patients in whom a deficit exists on admission; secondly, to anticipate problems in certain patients pre- or postoperatively, which include:

1. Patients on gastric or intestinal suction.
2. Patients receiving parenteral feeding for long periods.
3. Patients with fistula.
4. Patients with cardiac disease.
5. Patients with kidney disease.

The more common cases (hernias, appendectomies, varicose veins, pilonidal cystectomies) usually offer no postoperative problem. These patients take fluids by mouth early, and dehydration is soon corrected. If unable to take fluids orally for any reason, their dehydration can be adequately treated by five percent glucose in water intravenously. Most of our patients have their fluid intake-output charted for the first day or two postoperatively, and dehydration is discovered early and treated before it becomes a problem. A fall in urinary output, a rise in urinary specific gravity, or a fall in urinary chloride concentration may be indicative of early fluid or electrolyte deficiency. We feel that a urinary output of 1,500 c.c. of a 1.015 specific gravity, and a urinary chloride of 2 grams or more per liter is adequate in the presence of good kidney function.

Our intake-output charts are simple, kept by the patient's bedside, and show at a glance his intake and output activities for each twenty-four hour period. Intake-output charting is "routine" for patients on gastrointestinal suction, parenteral feeding, those with kidney disease, heart disease, and others in whom problems are anticipated. This charting may reveal the first hint of balance difficulties. Patients who we feel will present difficult or prolonged problems are managed by using the chloride balance method of Scribner.^{6,7} Our experience with this method has been gratifying.

Potassium deficiency is usually not a problem in patients who are able to take oral feeding within a few days, since most diets contain adequate potassium.¹³ Deficiency in potassium may occur, however, in those surgical patients who receive prolonged parenteral feeding, or in those who have large losses of gastrointestinal fluids. The only contraindications to the administration of potassium are severe dehydra-

tion, oliguria, or renal failure since adequate urinary output is necessary to avoid the dangers of potassium intoxication. Its administration should be checked from time to time by serial electrocardiograms, and it should not be given intravenously faster than 30 milliequivalents per hour. Our patients usually receive about 40 milliequivalents per day given in a period of not less than two hours. The safest and best method for its administration is by the oral route, and it can be given as the chloride, citrate, or as a mixture of both. The average daily need of a surgical patient is about 2 grams of potassium.⁵

SUMMARY

Several cases have been presented illustrating the more common problems in fluid and electrolyte balance in surgical patients as a basis for discussing the management of such problems by methods available in everyday hospital practice.

REFERENCES

1. Darrow, D. C., and Pratt, E. L.: Fluid Therapy, Relation to Tissue Composition and the Expenditure of Water and Electrolyte. *J. A. M. A.*, 143:365-373, 432-439, 1950.
2. Darrow, D. C.: Medical Progress: Body Fluid Physiology: The Role of Potassium in Clinical Disturbances

of Body Water and Electrolyte. *New Eng. J. Med.*, 242:978-983, 1014-1018, 1950.
3. Moore, F. D.: Adaptation of Supportive Treatment to Needs of the Surgical Patient. *J. A. M. A.*, 141:646-653, 1949.
4. Gamble, J. L.: Chemical Anatomy, Physiology, and Pathology of Extracellular Fluid. Cambridge, Harvard University Press, 1949.
5. Hoffman, Wm. F.: Clinical Physiology of Potassium. *J. A. M. A.*, 144:1157-1161, 1950.
6. Scribner, B. H., Power, M. H., and Rynearson, E. H.: Bedside Management of Problems of Fluid Balance. *J. A. M. A.*, 144:1167-1174, 1950.
7. Scribner, B. H.: Bedside Determinations of Chloride. A Method for Plasma, Urine and Other Fluids and its Application to Fluid Balance Problems. *Proc. Staff Meetings, Mayo Clinic*, 25:209-218, 1950.
8. Selye, H.: The General Adaptation Syndrome and the Diseases of Adaptation. *J. Clin. Endocrinol.*, 6:117, 1946.
9. Jaffe, H. L., Master, A. M., and Darrouse, W.: Salt Depletion Syndrome Following Mercurial Diuresis in Elderly Persons. *Am. J. Med. Sciences*, 220:60-65, 1950.
10. Schroeder, H. A.: Renal Failure Associated with Low Extracellular Sodium Chloride: Low Salt Syndrome. *J. A. M. A.*, 141:117-124, 1949.
11. Strauss, M. B.: Acute Renal Insufficiency Due to Lower Nephron Nephrosis. *New Eng. J. Med.*, 239:693-700, 1948.
12. Lucke, B.: Lower Nephron Nephrosis. *Military Surgeon*, 99:371-396, 1946.
13. Bills, C. E., McDonald, F. G., Niedermeier, Wm., and Schwartz, M. C.: Sodium and Potassium in Foods and Waters, Determination by the Flame Photometer. *J. Am. Dietetic Association*, 25:304-314, April, 1949.

CLINICAL EXPERIENCE WITH TRIMETON MALEATE LOTION WITH PREPARED NEOCALAMINE

MARTYN A. VICKERS, M. D., Bangor, Maine

INTRODUCTION

Successful and satisfactory management of cases of plant dermatitis depends in a considerable measure on relief of subjective symptoms, especially itching which is often most distressing. Secondary infection as a result of scratching frequently accompanies all types of dermatitis. Various types of lotions and creams with drying agents, anesthetics, and other drugs have been used with varying degrees of success. Plant dermatitis is in the nature of an allergic reaction. It is well known that antihistamines provide marked symptomatic relief of itching in these and other cases. These drugs may be administered orally or applied topically as desired. However, it is believed that topical application produces a relatively high concentration locally without causing side effects. In addition, there is some indication that results obtained from local administration are somewhat superior to those obtained from oral administration.

MATERIALS AND METHODS

This study is a report on 48 patients with plant

type dermatitis who were treated with Trimeton-Calamine Lotion.* The medication was applied liberally to the effected areas several times daily until the lesions had cleared.

RESULTS

Symptomatic relief judged from good to excellent was obtained in 40 patients in this series. Four patients complained of a continuous burning sensation and discontinued the use of the drug. In the remaining four cases the drug provided satisfactory relief for the first several days; the patients then felt they were made worse by continued application. In these patients the drug was discontinued.

SUMMARY AND CONCLUSIONS

The topical application of a lotion containing Trimeton and Neocalamine provides good to excellent relief of itching and burning associated with plant dermatitis.

* Supplied by Schering Corporation, Bloomfield, New Jersey.

PRESIDENTIAL NOTATIONS

Fall Clinical Session

Authoritative voices spoke fluently on important subjects at the Fall Clinical Session at Lewiston last month. Affiliated with important centers in the north-eastern part of the United States these men could bring their messages with a dual background of research and clinical experience. The major subjects of cardio-vascular disease and cancer were discussed from practical viewpoints which made appeal to every listener. It is expected that more than one of these speakers may re-appear at the annual session at Rockland next June. To the Lewiston group goes the warmest appreciation of the Maine Medical Association

for sponsoring an outstanding program with every arrangement flawlessly carried out. Success arises from the rapport between the Maine Heart Association, the Maine Cancer Association and their parent national bodies, a liaison which contributed to the eminent success of the session. Substantial assistance by the State Department of Health and Welfare is gratefully acknowledged.

C. HAROLD JAMESON, M. D.,
President, Maine Medical Association.

EDITORIAL

Progress Notes on the 1952 Annual Meeting

The Scientific Committee would like to acquaint the membership with the plans for the Spring Meeting as they are formulated. It will be held at The Samoset in Rockland, June 21, 22, and 23 of 1952 and active arrangements are already under way. The location, being close to the Atlantic, should inevitably produce excellent sea food, fishing and swimming, in addition to the usual golf and relaxation of any summer resort. It is, in addition, the aspiration of the Scientific Committee to produce a program so irresistible that attendance at the scientific sessions will break all previous records.

The scientific program will follow the usual pattern only partially, due to the desire of some men to return the meetings to the "conference" type of meetings which were utilized by the society some time in the past. This year we will devote the first part of both mornings to conferences on a variety of subjects which will be selected because of their interest to the general practitioners of the State. In the later part of the morning and the afternoon, more formal presentations will be held.

The Medico-legal society will again provide the major part of the Tuesday afternoon program, and it is expected that this group will once again provide an interesting and instructive demonstration of the close association between the medical man and the legal forces in cases of violence.

It has been a general feeling that two banquets were too many and for that reason the Tuesday evening

banquet has been dispensed with. Presentation of the Fifty-Year Medals will be made at the Monday evening banquet.

Many of the men attend the Annual Meeting for the purpose of relaxation and sociability. For this reason it is planned to have a non-professional program on Sunday evening. The program is planned at the present time and will consist of a musical program of unusual interest. More details on this in a later progress report.

There will be another Hobby Exhibit this year, bigger and better than last year's, we hope. Although entries of previous years will not be eliminated from the competition this year, it is hoped that the artisans and craftsmen of the Association will utilize their long winter evenings profitably and bring new projects for display this Spring. All correspondence in regard to the Hobby Exhibit will be handled by Mrs. Esther Kennard at the Portland Office.

The committee is anxious to provide a program of special interest this year and it would welcome any suggestions which the members may have concerning preparations for this meeting. Please make your suggestions now, while the plans are still in the formative stage so that they may be utilized in the planning for Spring Meeting.

LORING W. PRATT, M. D.,
Chairman, Scientific Committee,
Waterville, Maine.

THE NEW HOME OF THE THAYER HOSPITAL IN WATERVILLE

The new home of the Thayer Hospital in Waterville was officially opened on Sunday, November 11th. Its location, overlooking the Messalonskee Stream and the new Colby College Campus, made a most attractive setting for a short but impressive ceremony, witnessed by a large number of people from all over Central Maine. After the invocation by Rev. Kenneth L. Garrison, Mayor Squire introduced as speakers, Senator Owen Brewster, Congressman Charles Nelson, Commissioner David Stevens, representing Governor Payne, and Doctor Dean Fisher, Director of the Department of Health.

Randolph Brandt, Jr., Vice President of the Board of Trustees, accepted the keys of the building from Wallace E. Parsons, Chairman of the Building Committee, after which the building was opened for inspection by the Public.

The new Thayer Hospital, together with the Mansfield Clinic will provide the most modern diagnostic and therapeutic facilities for both physicians and patients. While its bed capacity is somewhat limited it has unusually extensive laboratory, X-ray, and surgical facilities, such as would be adequate for a 200 bed hospital. This is in line with its objective of providing the best of needed diagnostic services in this area. A group diagnostic service will be inaugurated making available to referring physicians a complete study of cases on an ambulatory basis.

The Mansfield Clinic, named in honor of the late Lt. Col. William Mansfield, one of Waterville's outstanding and most beloved citizens, will house the

out-patient and clinic services. The hospital has been conducting, for some time, a number of clinics, such as Tumor, Pediatric, Orthopedic, Mental Hygiene, Nose and Throat, Hearing Impairment, and Speech Therapy. These will be expanded to include Arthritis, Cardiac, Diabetes, and Ophthalmology. In addition the Clinic has an excellent Physiotherapy Department.

The hospital itself is most attractive, presenting a cheerful, home-like atmosphere due to the departure from routine in color and furnishings. Bright cheerful colors have been used most effectively throughout the building. Each patient's room whether single, two, or four beds, has its own toilet and individual built-in lockers for patients' clothes.

On the ground floor are the dietary and house-keeping departments, dining rooms, kitchens, laundry, staff library, pharmacy, and locker and store rooms.

The first floor is devoted to Administration and reception, X-ray department, laboratories, record room, central supply, accident room, and the operating suite, as well as a Coffee and Gift Shop run by the Woman's Auxiliary.

Rooms for medical and surgical patients are on the second floor while the third floor is occupied by the obstetrical department, with two delivery rooms, labor room, and three nurseries.

Members of the Maine Medical Association are cordially invited to call and inspect this new addition to the hospital facilities of the State.

"GREATER MERCY HOSPITAL" OF PORTLAND

The space allowed us in this JOURNAL of the month affords a pleasant opportunity to extend an invitation to the members of the Maine Medical Association to visit the "Greater Mercy Hospital" of Portland. Everyone is probably familiar with its description because of the extensive publicity it received at its official opening on October 21 — publicity which was not only state, but nation-wide. However, realizing that a personal inspection is much more realistic and profitable than a mental picture, we cordially invite the physicians of the community to come and see that Something New has really been added to Mercy.

Perhaps the most important feature of the new addition from the viewpoint of the medical profession, is the additional bed space for 90 patients. This number, supplementing the capacity of the present building for 150 patients, arrives at a total normal bed capacity of 240. Due to the fact that central facilities such as kitchen, laboratory, X-ray department, etc., were planned for in the original building, only minor adjustments and re-arrangements were necessary to

bring about the proper functioning of all departments of the hospital.

Of the new facilities now available, to completely round out the service offered to the community and the medical profession, mention might be made of the new accident and emergency department, comprising a complete surgical suite and two 2-bed wards, an out-patient department which offers some ten specialized clinic rooms, a complete physical therapy department, with electrotherapy, hydrotherapy and exercise units and staffed by a qualified technician, as well as a completely equipped plaster room on the ground floor.

A Pediatric division of 31 beds with isolation and infant departments is provided for on the second floor; medical and surgical divisions occupy the third and fourth floors. Babies have come into their own on the fifth level with four 10 bed shining, air conditioned nurseries — the remaining space on this floor is devoted to private and semi-private maternity rooms. Combined with the present facilities, the obstetric division is equipped to serve approximately 40 maternity cases.

Continued on page 354

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Ralph A. Goodwin, Jr., M. D., Auburn

Aroostook

President, Bernard H. Gagnon, M. D., Houlton
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, M. W. Westermeyer, M. D., Bath

Oxford

President, Edward L. Reeves, M. D., Lewiston
Secretary, Dexter E. Elsemore, M. D., Dixfield

Penobscot

President, Harry D. McNeil, M. D., Bangor
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Linus J. Stitham, M. D., Dover-Foxcroft
Secretary, George C. Howard, M. D., Guilford

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, Herbert S. Everett, M. D., St. Stephen, N. B.
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Hancock

The 257th meeting of the Hancock County Medical Society took place Wednesday, October 10, 1951, at the Hancock House, Ellsworth, Maine.

Mr. Morris P. Cates of the State Department of Education spoke relative to the proposed program of practical nurse training in the State of Maine. The society voted to go on record as being in favor of a formal practical nursing training program in the State.

Dr. Edward Prien of Boston, presented a talk on *Pitfalls in Urological Diagnosis* followed by an informal discussion of common urological problems. Dr. Prien's talk was very informative and gave the members of the society an opportunity to obtain answers to specific questions and problems.

JOSEPH H. HANSON, M. D.,
Secretary.

Kennebec

A regular meeting of the Kennebec County Medical Association was held at the Augusta House, Augusta, Maine, September 20, 1951. The meeting began at 6.00 P. M. to accommodate the speaker who was forced to leave early. At this hour a roast beef dinner was served to thirty-three (including late arrivals). To further expedite matters the business meeting was delayed until after the speech.

Immediately following the meal, President Edwin W. Harlow introduced Sidney Farber, M. D., Pathologist of the Children's Hospital, Boston, whose subject was *Unexpected Deaths in the Young*, illustrated with slides. He discussed the cases of babies found dead in bed without history of symptoms; usually due to fulminating infections with streptococcus, meningococcus, pneumococcus, etc.; a baby almost never suffocates in the bedding. He discussed the present status (it has none) of the thymus as a cause of death; he brought out the importance of complete postmortems. He had to rush from the meeting for the plane but there were many comments later. Dr. Farber is a fluent, fascinating, very personable speaker. We have rarely had speakers who are as well received.

A brief business meeting followed. The records of the last meeting were approved. Dr. Lee Richards, Jr., of Augusta, was elected to membership.

President Harlow appointed Drs. Mitchell, McKay and Small to write resolutions on the death of Frederick R. Carter, M. D., and announced that he would later make appointments for Dr. Coombs and Dr. Gousse.

A. H. MORRELL, M. D.,
Secretary.

Lincoln - Sagadahoc

M. W. Westermeyer, M. D., of Bath, has been appointed Secretary-Treasurer of the Lincoln-Sagadahoc Medical Society, to succeed Dr. Ralph C. Powell who has resigned.

Oxford

The annual meeting of the Oxford County Medical Society was held at Bethel Inn on Wednesday, October 3, 1951.

The following officers were elected for the coming year:

President, Edward L. Reeves, M. D., Lewiston.

Vice President, David S. Broughton, M. D., Rumford.

Secretary-Treasurer, Dexter E. Elsemore, M. D., Dixfield.

Auxiliary Committee on Legislation, Chesley W. Nelson, M. D., Norway.

Councilors: Garfield G. Defoe, M. D., Henry M. Howard, M. D., and Walter G. Dixon, M. D.

An Advertisement of G. D. Searle & Co.

(The Council on Pharmacy and Chemistry of the American Medical Association has adopted the following statement of Actions and Uses and of Dosage for publication in connection with a description of Banthine Bromide for inclusion in New and Nonofficial Remedies)

METHANTHELINE BROMIDE.—*Banthine*[®] Bromide (Searle)

β -diethylmethylaminoethyl 9-xanthenecarboxylate bromide

Actions and Uses.—Methantheline bromide, a parasympatholytic agent, produces both the peripheral action of anticholinergic drugs such as atropine and the ganglionic blocking action of drugs such as tetraethylammonium chloride. Tolerated amounts of methantheline bromide exert side effects typical of atropine-like drugs, but cause less tachycardia, and also less postural hypotension than does tetraethylammonium chloride. Toxic doses produce a curare-like action at the somatic neuromuscular junction.

Clinical studies indicate that the drug effectively inhibits motility of the gastrointestinal and genitourinary tracts and, to a variable degree, diminishes the volume of perspiration and salivary, gastric and pancreatic secretions. It also decreases mucoprotein secretion. Like atropine, it produces mydriasis and cycloplegia when applied locally to the eye or administered systemically, but until more clinical evidence becomes available, its local use for this purpose is not recommended. The value of the drug for preventing abnormal cardiac reflexes through the vagus during thoracic surgery, or as an agent for routine preoperative medication in place of atropine, requires further investigation before final conclusions can be reached.

Methantheline bromide is indicated for clinical use whenever anticholinergic spasmolytic action is desired, provided it is not contraindicated because of its atropine-like characteristics or because of a patient's intolerance to the unavoidable side effects of such therapy. It is useful as an adjunct in the management of peptic ulcer, chronic hypertrophic gastritis, certain less specific forms of gastritis, pylorospasm, hyperemesis gravidarum, biliary dyskinesia, acute and chronic pancreatitis, hypermotility of the small intestine not associated with organic change, ileostomies, spastic colon (mucous colitis, irritable bowel), diverticulitis, ureteral and urinary bladder spasm, hyperhidrosis or control of normal sweating which aggravates certain dermatoses, and control of salivation.

Methantheline bromide produces some degree of cycloplegia and mydriasis in therapeutic doses and

therefore should not be administered to patients with glaucoma. It sometimes decreases the ability to read fine print. Xerostomia (dryness of the mouth) is a common, sometimes transient, side effect. Urinary retention of varying degree may occur in elderly male patients with prostatic hypertrophy, and some patients may have difficulty emptying the rectum. Patients with edematous duodenal ulceration may experience nausea and vomiting during initial administration of the drug. These patients should take only liquids during the institution of drug therapy. All patients should be advised of the possible occurrence of side effects. Overdosage sufficient to produce a curare-like action may be counteracted by prompt subcutaneous injection of 2 mg. of neostigmine methylsulfate.

Dosage.—Methantheline bromide is administered orally or parenterally by either the intramuscular or intravenous route. Parenteral administration is not advised for patients able to take the drug orally. The average initial adult dose, oral or parenteral, is 50 mg. For patients with considerable intolerance, 25 mg. may be employed. In the management of peptic ulcer, a beginning schedule of 50 mg. three times daily before meals and 100 to 150 mg. on retiring is suggested. However, the usual effective dose is 100 mg. four times daily, although some patients may require more or less than this amount. The dosage may be increased to tolerance, using dryness of the mouth as a guide, and adjusted to meet the individual response of patients. Maintenance dosage in peptic ulcer is usually considered to be about one-half the therapeutic level. In the management of other hypermotile or hypersecretory states, the dosage should be adjusted to the smallest amount which will relieve the symptoms. When spastic conditions are secondary to inflammatory or other organic lesions, therapy directed toward the cause should be employed whenever possible.

G. D. SEARLE & CO.

Tablets Banthine Bromide: 50 mg.

Ampuls Banthine Bromide: 50 mg.

County Society Notes—Continued from page 350

Delegates to the Maine Medical Association: Dexter E. Elsemore, M. D. (1 year), Albert P. Royal, M. D. Rumford (2 years). Alternates: Peter B. Aucoin, M. D., Rumford (1 year), James A. MacDougall, M. D., Rumford (2 years).

Robinson L. Bidwell, M. D., of Portland, was the speaker and gave an interesting paper on *Neurosurgical Methods for Treating and Controlling Pain*.

DEXTER E. ELSEMORE, M. D.,
Secretary.

Penobscot

A meeting of the Penobscot County Medical Association was held on Tuesday, October 16, 1951. A total of eighty-seven physicians representing over ninety per cent of the membership were present.

Dr. Frank Lahey of Boston, discussed carcinoma of the colon, ulcerative colitis and regional ileitis. With regard to large bowel malignancy he stressed the importance of early diagnosis. He pointed out that the percentage of five-year cures declines rapidly as the lesion becomes more extensive

with time. The indications for surgical intervention in ulcerative colitis were mentioned, the most important being massive hemorrhage. With early ileostomy, followed later by colectomy, the condition of a large proportion of patients with this disease is markedly improved. Malignancy developing on a background of ulcerative colitis has a very poor prognosis. Surgical treatment of regional ileitis must be instituted early because of the development of numerous fistulae and dense adhesions in the late stages. Under such conditions beneficial surgery is almost impossible. In the discussion period following his talk, Dr. Lahey stated that only one antithyroid drug (viz. proplthiouricil) has proved effective.

HERBERT C. SCRIBNER, M. D.,
Secretary.

New Members

Kennebec

Lee Richards, Jr., M. D., 21 Western Avenue, Augusta, Maine.

A LITTLE ABOUT SOME OF YOUR COLLEAGUES

Eugene H. Drake, M. D., Portland physician and heart specialist, President-elect of the Maine Medical Association and Editor of the JOURNAL OF M. M. A., was presented with the Kiwanis plaque for distinguished service to the City of Portland on October 23rd.

Charles H. Knickerbocker, M. D., writes us as follows: "I noticed an item on p. 296 of the current (September) issue of the JOURNAL OF THE M. M. A. requesting information about members which might be of interest to the membership in general. Maybe the following information would be of interest.

"I am a member of the Hancock County Medical Society (formerly Secretary-Treasurer) and of the M. M. A. Currently, I am on leave from my practice in Bar Harbor on a tour of active duty with the Army. I am assigned to the Surgeon General's Office in Washington, D. C.

"My first novel is being published on October 19. It is entitled *The Boy Came Back*—published by A. A. Wyn. It is the story of a small Maine town and its reactions to the outbreak of the Korean situation; one of its characters is a rural country doctor."

Dr. Knickerbocker's present address is 106 East Marshall Street, Falls Church, Virginia.

William A. Ventimiglia, M. D., member of the Cumberland County Medical Society and M. M. A. (The following was received from Army Home Town News Center, Kansas City, Missouri, with a note from the Editor stating that "This story was mailed from Korea, 19 October, 1951.")

"With the 7th Inf. Div. in Korea—Lt. Col. William A. Ventimiglia, whose wife, Eleanor, lives at 84 Hersey St., Portland, Me., is serving in Korea as commanding officer of the 7th Division's Medical Battalion.

"The 41-year-old officer supervises all medical operations in this division.

"A practicing physician before entering the Army last July, Ventimiglia was called to active duty while serving as

commanding officer of the National Guard's medical detachment, 703rd AAA Gun Battalion.

"Ventimiglia is a graduate of St. Ann's Academy and Washington Square College, New York City, and of Royal University, Bologna, Italy. Before entering the Army he was vice president of the Maine Tuberculosis Association and vice president of the Cumberland County Tuberculosis Association."

Edward L. and Helene M. Reeves, both M. D.'s, members of the Oxford County Medical Society and M. M. A., have recently moved from South Paris to 179 Sabattus Street, Lewiston. They are one of several husband and wife teams in the State Association.

Dr. Edward was recently elected President of the Oxford County Society.

Paul G. Lemaitre, M. D., member of the Androscoggin County Medical Society and M. M. A., has moved from 80 Seventh Street, Lewiston, to 268 Webster Street, Lewiston.

Clarence C. Peaslee, M. D., Honorary Member of the Androscoggin County Medical Society and M. M. A., has moved from Auburn to 1711 Washington Avenue, Portland.

What can you contribute to this column?

This column in the JOURNAL has been instituted to keep you in touch with the activities of your fellow M. M. A. members. At this writing we have a membership totaling 766; 653 active, 53 honorary, 8 affiliate, 41 senior and 11 in military service.

In addition to news of individual members, including change of address, we have brought you information about several father and son practitioners, an item above about one of our husband and wife teams and information about several members in military service.

Remember the address: Maine Medical Association, 142 High St., Portland 3, Maine.

FREE SAMPLE

DR. _____
ADDRESS _____
CITY _____ ZONE _____
STATE _____



AR-EX MULTIBASE

New Universal Ointment Vehicle Compatible with ALL Topical Medicaments

Prescribe ointments of cosmetic elegance—made with AR-EX Multibase. Applies readily, even to hairy areas, rinses off with plain water. No screening action, making all medicaments available.



AR-EX COSMETICS, INC.

1036 W. VAN BUREN ST. CHICAGO 7, ILL.

NECROLOGY

Wilfrid J. Comeau, M. D.

1906 - 1951

Wilfrid J. Comeau, M. D., 44, of Bangor, Cardiologist and President of the Maine Heart Association, died September 6, 1951, of a heart ailment.

He was born at Worcester, Massachusetts, December 14, 1906, was graduated from Worcester Classical High School, and Amherst College and received his medical degree from Harvard Medical School in 1933. He took post graduate courses in cardiology at Boston City Hospital, Guys Hospital, in London, Pathologic Institute University in Freiburg, Germany, and Massachusetts General Hospital Cardiology Department. He practiced in Boston from 1937 to 1939 before locating in Bangor.

He served in the army medical corps in World War II, returning to private practice with the rank of Colonel.

He became widely known and respected throughout the State for his ability as a practicing cardiologist, and for his active interest in and work with the various organizations to which he belonged. He initiated the idea of the travelling cardiac clinic in Maine and was later assigned to conduct the Caribou clinic. He contributed numerous publications in the field of cardiology from 1936 to 1951.

He was elected President of the Maine Heart Association at their annual meeting in June, 1951.

Dr. Comeau was a member of the American and New England Heart Associations, Penobscot County Medical Society, Maine Medical Association, American Medical Association and a Fellow of the American College of Physicians.

He is survived by his widow and three children.

NEWS AND NOTES

New England Tuberculosis Conference

A New England Tuberculosis Conference was formed in Hartford, Connecticut, October 10 and 11, when nearly 250 persons interested in tuberculosis control met together. Membership is open to all persons interested in the problem and who are residents of the New England States. Chest physicians, doctors in private practice, members of Sanatorium staffs, health department and tuberculosis association workers, medical social workers and rehabilitation councilors are among those who attended. The group met in conjunction with the Connecticut Trudeau Society.

Mr. Edmund P. Wells, Executive Secretary of the Maine Tuberculosis Association, was elected President of the Conference. Dr. Gisela Davidson of Portland, Mr. William T. Davis of Lewiston, President of the Lewiston-Auburn Tuberculosis and Health Association and Mrs. Ruth O. Young, Augusta, Health Education Consultant of the Maine Tuberculosis Association, were elected to the governing council.

Medical Students to Publish Magazine

The first issue of the *Journal of the Student American Medical Association*, a 72-page publication, will make its appearance in January, according to a recent announcement by Russell F. Staudacher, executive editor.

Published nine months of the year, skipping July, August and September when schools are closed, the magazine will have a circulation of more than 33,000. It will be sent to 26,191 medical students and approximately 7,000 interns.

The *Journal's* contents will be approximately one-half editorial and one-half advertising. About 80 per cent of the editorial space will be equally divided between scientific articles and socio-economic articles. Remaining space will be taken up by special features.

The staff will also include Walter H. Kemp, Chicago, managing editor; Philip Corso, a senior at Tufts College Medi-

cal School, Boston, student editor; and Thomas R. Gardiner, Chicago, advertising director. Headquarters will be at 535 No. Dearborn Street, Chicago 10, Illinois. The magazine will be printed by Von Hoffman Press, Inc., St. Louis.

Maine Radiological Society

The Maine Radiological Society held its fall meeting on Friday, November 2nd, 1951, at the Augusta House. Following the business meeting, there was a long and extremely interesting "Film Discussion" session. The meeting was largely attended by members and guests.

Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Armand L. Guite, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, Tuesdays, 10.00-11.00 A. M., Irving I. Goodof, M. D., Director.

Zemmer...

PHARMACEUTICALS

A complete line of laboratory controlled ethical pharmaceuticals. Chemists to the Medical Profession since 1903.

THE ZEMMER CO., Pittsburgh 13, Pa.

*In very special cases
A very superior Brandy*



Specify

84 Proof

HENNESSY

THE WORLD'S PREFERRED
COGNAC BRANDY

Schieffelin & Co., New York N.Y.

ACCIDENT - HOSPITAL - SICKNESS INSURANCE

For Physicians, Surgeons, Dentists Exclusively



\$5,000.00 accidental death	\$8.00
<i>\$25.00 weekly indemnity, accident and sickness</i>	Quarterly
\$10,000.00 accidental death	\$16.00
<i>\$50.00 weekly indemnity, accident and sickness</i>	Quarterly
\$15,000.00 accidental death	\$24.00
<i>\$75.00 weekly indemnity, accident and sickness</i>	Quarterly
\$20,000.00 accidental death	\$32.00
<i>\$100.00 weekly indemnity, accident and sickness</i>	Quarterly

Cost has never exceeded amounts shown
Also Hospital Policies for Members, Wives and
Children at Small Additional Cost

85¢ out of each \$1.00 gross income used for
members' benefit

\$4,000,000.00 **\$17,000,000.00**
INVESTED ASSETS **PAID FOR CLAIMS**

\$200,000.00 deposited with State of Nebraska for
protection of our members.

Disability need not be incurred in line of duty—benefits
from the beginning day of disability

PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION

49 years under the same management

400 FIRST NAT. BANK BLDG., OMAHA 2, NEB.

Greater Mercy Hospital—Continued from page 349

Three major operating rooms with adjunct facilities have been added to the sixth floor. This makes a total of seven rooms for major surgery, besides a cystoscopic room on the same floor. The newer surgeries are at present, being air conditioned.

One of the newest features of the building is a 6-bed recovery unit adjacent to the surgery wherein all patients who have had general anesthesia and who require close observation may be given constant, expert care which they should have during the immediate post-operative period. Piped oxygen and suction and all necessary equipment for such cases is incorporated in this section.

Other features which have been installed and which should add to the speed, efficiency and economy of operation are as follows:

a pneumatic tube system which connects all nurses' stations, laboratory, pharmacy, central surgical supply, record and out-patient departments, which greatly speeds up the work of transmitting messages, prescriptions or even small vials and packages to and from departments;

an intercommunicating system between nurses' stations and patients which allows the patient to make a direct call to the nurse and eliminates many steps from the nurses' station to the bedside;

a humidity or steam room which permits absolute control of temperature and humidity up to 100% under careful supervision. This is the most complete unit of its kind in New England, and has already been in use several times;

an expanded telephone system which permits all inter-departmental calls to be taken care of by a dial system, and prevents overloading the switchboard to the disadvantage of urgent incoming and outgoing calls;

a public address system which may supplement the present "silent page" call for the Doctor in an emergency and will alert certain areas within the hospital such as nurses' stations, auditorium, etc., for special communications;

a silent radio system which we hope will accentuate the quiet of acoustical ceilings and rubber floors of the new building.

A coffee shop and a gift shop staffed by a public spirited volunteer group of ladies, a standby emergency light and power unit, and an auditorium for professional, recreational and business meetings, have been added to Mercy, as well as many other helpful and worthwhile hospital features. However, at this time we should not say that Mercy Hospital is complete, for a hospital should never be static and Mercy will continue to grow. Even now, as the newest addition is being opened, other facilities are being talked of, which will still further increase the usefulness of this institution to the physicians and community of Portland and of Maine.



The Journal of the Maine Medical Association

Volume Forty-Two

Portland, Maine, December, 1951

No. 12

SIMMONDS' DISEASE FOLLOWING IRRADIATION OF THE PITUITARY GLAND FOR ACROMEGALY

A Case Report

LYMAN O. WARREN, M. D.*

Simmonds' disease, or panhypopituitarism, is a disease of varied etiology most commonly caused by scarring and atrophy of the anterior lobe of the pituitary gland which results from an acute post-partum necrosis of the gland, developing several weeks after delivery, in women who have undergone post-partum circulatory shock usually following massive hemorrhage. This condition is designated as "Sheehan's syndrome." Less common lesions which may cause destruction of the anterior pituitary and produce the clinical symptoms of Simmonds' disease are cysts and solid tumors of the pituitary gland, especially chromophobe adenomas and craniopharyngeomas, intracranial tuberculosis and syphilis and trauma to the base of the skull.

The manifestations of this disorder are those of failure of the "target glands" which are normally controlled by the pituitary. When thyroid failure predominates, the clinical picture of myxedema is seen. When the adrenal glands are most severely affected, Addison's disease may be mimicked. Symptoms of gonadal failure appear early in the course of the disease in many cases, and may predominate the clinical picture of a few individuals.

The diagnosis may be suspected if one considers the possibility of pituitary dysfunction in evaluating patients with amenorrhea, loss of libido, sensitivity to cold, loss of hair from the scalp, eyebrows, pubis or axilla, brittle nails, dry skin, drowsiness, weakness, unexplained nausea or gastrointestinal upsets.

Physical examination may disclose the puffy facies of myxedema with its characteristic "reptilian" expression. The skin may be rough and scaly or smooth and atrophic. The blood pressure may be low and the gonads small. Interestingly, the typical skin and mucous membrane pigmentation of Addison's disease is almost never seen. Extreme emaciation is unusual in this condition. When present it would suggest the possibility of anorexia nervosa rather than Simmonds' disease.

The laboratory may give important diagnostic assistance. The basal metabolic rate is generally very low, although the serum cholesterol, which is almost always elevated in true myxedema, may be high, low or normal. Serum chloride and sodium levels may be depressed. The fasting blood glucose may be low and the patient may have an increased tolerance to the administration of glucose. The insulin tolerance test is apt to show increased sensitivity to insulin. The Robinson-Kepler-Power and Cutler-Power-Wilder

* From the Medical Service of the Eastern Maine General Hospital, Bangor, Maine.

tests may be positive. The urinary excretion of follicle-stimulating hormone may be minimal or absent and urinary 17-ketosteroids are usually low.¹

The case to be presented is somewhat unique in that the symptoms of hypopituitarism, predominantly those of adrenal insufficiency, developed following deep X-ray irradiation of the pituitary gland for acromegaly.

CASE REPORT

O. J. M., a 37-year-old, white, male laborer was admitted to the Eastern Maine General Hospital on July 29, 1948, because of anorexia and weakness of three weeks' duration and vomiting and "blackout spells" of three days' duration. Four months earlier a diagnosis of acromegaly was made at another hospital. Severe headaches were present and a course of deep X-ray irradiation* to the pituitary gland resulted in the relief of pain. He enjoyed good health for a period of several weeks, after which the symptoms of weakness and anorexia began.

Physical examination on admission disclosed the characteristic facies of acromegaly. There was profound weakness and marked pallor. The blood pressure was only 80/55 mm. Hg. and when the patient was allowed to stand, weakness and postural hypotension were obvious. The visual fields were normal.

Laboratory studies disclosed an erythrocyte count of 4.29 million per cu. mm., a hemoglobin of 10.5 gms. per 100 c.c. (67%) and a leukocyte count of 7,050 per cu. mm. A urinalysis showed no abnormalities. The basal metabolic rate was minus 31%. The fasting blood sugar was 65 mg. per 100 c.c.; serum chlorides 560 mg. per 100 c.c. (96 meq. per liter); cholesterol 182 mg. per 100 c.c. A glucose tolerance test conducted with the oral administration of 100 gm. of dextrose showed the following response; fasting, 68 mg.; one-half hour, 120 mg.; one hour, 125 mg.; 2 hours, 97 mg. per 100 c.c. An insulin tolerance test conducted with the intravenous administration of 0.05 units of regular insulin per 10 Kg. of body weight showed the following response: fasting, 65 mg.; one-half hour, 55 mg.; one hour, 55 mg.; two hours, 50 mg. per 100 c.c. The "Kepler Water Test" was positive.

Roentgenograms of the skull showed slight enlargement of the sella turcica with secondary changes in the bony fossa.

Photographs of the patient in 1942, 1944 and 1946 were reviewed. These showed a progressive change in facial appearance consistent with that of classical acromegaly.

The diagnosis of hypopituitarism seemed likely from the history and clinical findings. It was felt that

adrenal insufficiency was the outstanding physiological feature. He responded promptly to the administration of desoxycorticosterone acetate, testosterone, thyroid extract and sodium chloride tablets, and a feeding schedule of six meals per day. When discharged after eighteen days of hospitalization he was much improved.

Since leaving the hospital the patient has been followed regularly for slightly over three years. In November, 1948, an attempt was made to implant pellets of testosterone and desoxycorticosterone acetate. As is often the case the implantation was unsuccessful. Methyl testosterone was substituted for the testosterone injections with a good effect. His general appearance, erythrocyte count, hemoglobin concentration and blood pressure improved more rapidly than did his blood sugar level or his basal metabolic rate. The injections of desoxycorticosterone acetate were gradually decreased and were eliminated in July, 1950. The administration of sodium chloride was reduced in January, 1951 from six to three grams per day. At this time his general condition was quite good and there were no remarkable alterations in the blood chemistry determinations. The roentgenograms of the skull and the visual fields were unchanged from previous examinations. In July, 1951, all medication except extra salt was discontinued. The patient continued to feel just as well as ever and was able to do heavy labor without ill effects. Examination in October, 1951, disclosed no change in his physical status. His hemoglobin estimation, blood count, and urinalysis were normal. The basal metabolic rate was minus 8.5%; serum chlorides, 91 meq. per liter; potassium 6.8 meq. per liter; dextrose 93 mg. per 100 c.c.; cholesterol 150 mg. per 100 c.c. A "Kepler Water Test" suggested adrenal insufficiency. In view of his general feeling of well being and despite the evidence of possible latent adrenal insufficiency, he was continued without medication with the expectation that further improvement in pituitary function would occur.

SUMMARY

A case of hypopituitarism, which followed irradiation of the pituitary for acromegaly, is presented and discussed. The predominant symptoms were those of adrenal insufficiency. An excellent clinical response followed the administration of sodium chloride, desoxycorticosterone acetate, testosterone and thyroid extract. These medications were gradually discontinued and some evidence of renewed pituitary activity has been observed.

REFERENCE

1. Williams, Robert H.: Textbook of Endocrinology, pp. 288-293, W. B. Saunders, Philadelphia, 1950.

* The total therapy administered was 2750 roentgens.

ACTH AND CORTISONE IN THE TREATMENT OF WEBER-CHRISTIAN DISEASE*

A Case Report

DONALD W. DREW, M. D.,** ANNE A. WASSON, M. D.,*** and LLOYD E. MORRIS, JR., M. D.****

An interest in Weber-Christian Disease has been recently stimulated by reports such as those of Brudno¹ and Kennedy² who have suggested the possible relationship of this disease to others of the "collagen group." There follows a case report of a patient with Weber-Christian disease who was treated with ACTH and cortisone, each of which has produced effective results in many diseases of the "collagen group."

CASE REPORT

M. G., a 46-year-old housewife, was admitted to the hospital on October 4, 1950, complaining of joint pain and fever of six days duration.

Since January, 1950, vague joint and muscle pains had been present intermittently but were never previously as acute as in the present attack. During the present illness the arthralgia was somewhat migratory and involved the shoulder girdle, elbows, knees, and left ankle. The patient was confined to bed for six days prior to admission because of generalized malaise, chilly sensations, and fever of over 100° F. Twenty-four hours before admission the patient noted redness, heat, and swelling, especially in her knees, and left ankle. She noted the sudden onset of painful nodular eruptions, each the size of a dime, in the skin of the forearm and over the ankle. Functional inquiry was essentially non-contributory except for some shortness of breath on exertion. The patient knew of no drug sensitivity. There was no history indicating previous rheumatic fever. However, there was a strong family history of this disease; a sister, niece, and a maternal grandmother had all suffered from rheumatic fever.

Physical examination was essentially negative except for slight painful limitation of motion of the right arm at the elbow. The skin over the extensor surfaces of both forearms contained areas 1.5 to 2 cms. in diameter which showed a brownish-red discoloration and which were nodular in character. The nodules were tender and were said to arise almost overnight. A few days before admission, similar areas had been

present on the leg, about the knees, and especially around the left ankle. On admission the skin over these areas had a deeper brown discoloration, was depressed and atrophic.

Laboratory data revealed the following: urine; specific gravity 1.012. Sedimentation rate; 29 mm. in 50 minutes (Cutler method). Hemoglobin, 13 gms.; white blood count, 8,200; segmented forms 73%, band forms 1%, eosinophiles 1%, lymphocytes 16%, polymorphocytes 3%, and monocytes 6%. Agglutinations for typhoid, paratyphoid A and B, typhus, and brucella abortus were negative in all dilutions.

On the eighth hospital day, a biopsy of skin and subcutaneous tissue was taken from a lesion on the right calf. (Fig. 1) Sections of subcutaneous tissue

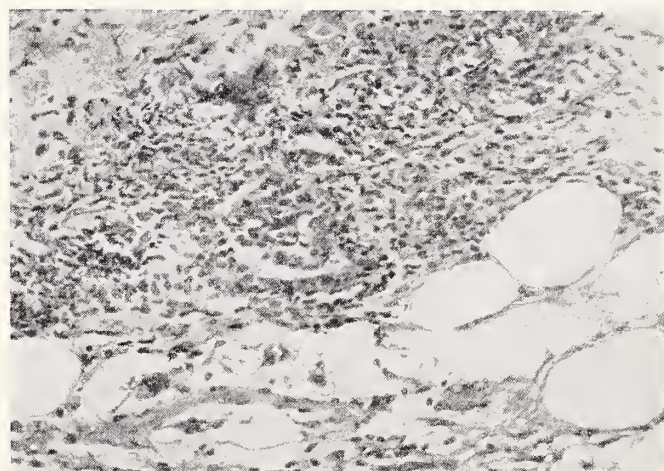


Figure 1. Subacute Nodular Panniculitis. Section of subcutaneous nodule before therapy. Adipose tissue is partially replaced by an infiltration of polymorphonuclear leukocytes, band forms and epithelioid cells. Coagulated protein and strands of fibrin can be seen replacing fat in the lower portion of the section.

revealed numerous scattered areas of adipose tissue in which the fat cells were replaced by irregular particles of eosinophilic coagulated protein throughout which were scattered numerous polymorphonuclear leukocytes, band forms and some epithelioid cells. In some areas there were nests of erythrocytes and strands of fibrin. In occasional areas the inflammatory cells appeared to be concentrated about blood vessels. No foam cells were seen. Diagnosis: Subacute nodular panniculitis.

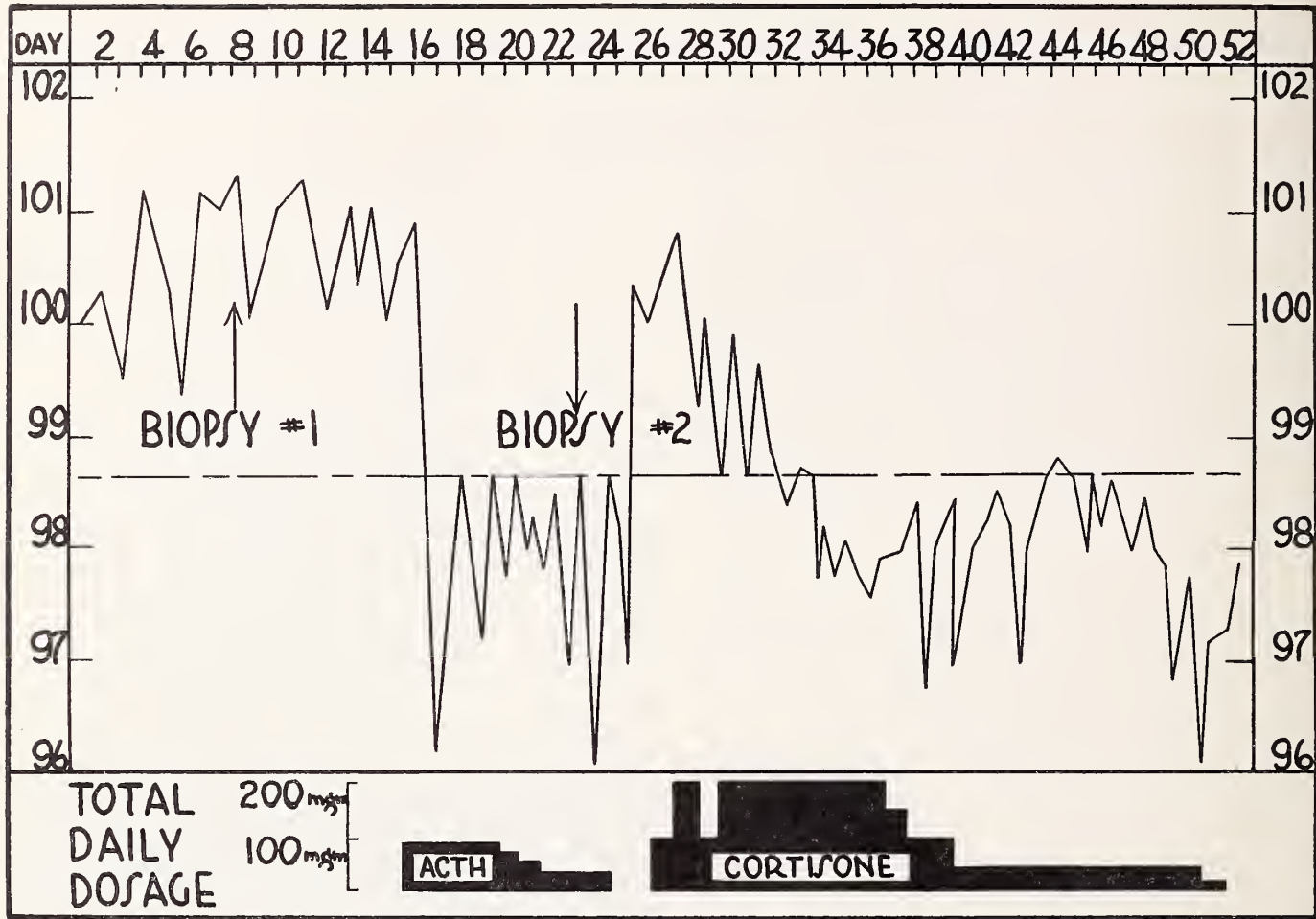
During the first fifteen days of hospitalization, the patient had a persistent fever which ranged between 100° and 101° F. (See Chart). On the sixteenth hos-

* From the Medical and Pathological Services of the Eastern Maine General Hospital, Bangor, Maine.

** Teaching Resident in Medicine, Eastern Maine General Hospital, Instructor in Medicine, Tufts College Medical School (Postgraduate Div.), Boston, Massachusetts.

*** Intern, Eastern Maine General Hospital.

**** Assistant Pathologist, Eastern Maine General Hospital.



pital day 80 mgms. of ACTH was started and given daily for four days. The dosage was then dropped to 60 mgms. and given for two days, and then again dropped to 40 mgms. and given for three days. A total of nine days of ACTH therapy was given and the drug was discontinued at this time because of a slowly mounting blood pressure. Within eight hours of institution of this therapy, the temperature dropped to a sub-normal level and thereafter remained normal during the course of ACTH therapy. Within twenty-four hours of the discontinuance of the ACTH the fever again returned and varied between 100° and 101° F.

After two days of elevated temperature, cortisone therapy was started using 100 mgms. twice a day. The patient was maintained on this dosage for a period of seven days before the amount administered was gradually reduced. Therapy was continued over the next sixteen days. During the course of the first to fifth day of cortisone therapy the temperature returned slowly to normal and remained so during the rest of her treatment. Clinically, the patient was much improved. Her appetite returned, she was able to sleep throughout the night, and her joint pains subsided entirely. Within two days after ACTH had been started, the skin lesions completely disappeared although areas of discoloration were present where nodules had previously existed. In a short period of

two days between ACTH and cortisone therapy, the nodules began to reappear and again disappeared after cortisone was instituted.

A second biopsy was taken after seven days of ACTH therapy in an area where a nodular skin lesion had previously existed. (Fig. 2) Sections of skin and

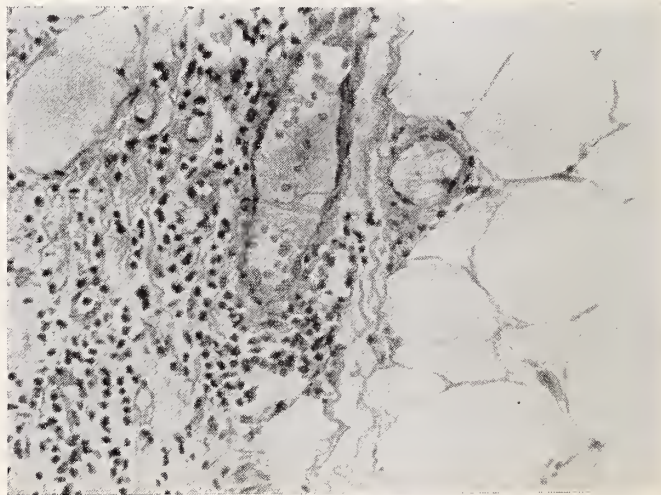


Figure 2. Healing Panniculitis. Section of subcutaneous nodule after administration of ACTH. The inflammatory response is almost entirely lymphocytic in a loose collagenous background. The relation of the lymphocytes to the blood vessels and collagenous stroma is shown. There are no demonstrable polymorphonuclear leukocytes.

subcutaneous tissue revealed in the areolar tissue scattered areas of loose collagenous fibrosis interspersed with lymphocytes. Occasional eosinophils and occasional multinucleated giant cells could be found in the inflammatory foci. A few scattered lymphocytes were found between the adjacent fat cells. There was a tendency for the lymphocytes to be concentrated about blood vessels. Diagnosis: Healing panniculitis.

The patient has been followed in the outpatient department over the last four months since her discharge November 27, 1950. She has had no return of fever, has gained weight, has had a good appetite, and has had no recurrence of the original skin lesions. The sedimentation rate at the present time is within normal limits.

DISCUSSION

Localized areas of inflammation in the panniculus adiposus of the lower extremities are not uncommon especially in obese middle-aged females with a prominent subcutaneous fat layer. Trauma or local circulatory disturbances associated with varicosities may well be predisposing factors.

Weber³ and Christian⁴ described clinically a syndrome involving skin eruptions with panniculitis, malaise, fever, arthralgia, and muscle pains, more often occurring in non-obese individuals. They stressed the severity of systemic reaction to the process with fever and a recurrence of the attacks. The case presented has all the classical findings described by Weber and Christian with the exception of subsequent exacerbation. However, the patient has not been observed over a long period and this was her initial episode. During hospitalization we were able to induce a temporary remission with ACTH and an exacerbation was brought about by discontinuing the drug.

Stockman⁵ in 1928 described a case similar to those of Weber and Christian and suggested the relation-

ship of this disease to acute rheumatic fever. He refers to the panniculitis as a fibrositis of the panniculus adiposus. Degenerative change in the collagen fibril is a common denominator in the inflammatory processes of panniculitis and other "rheumatic diseases." Although the etiological agent behind the inflammatory process is unknown, ACTH and cortisone seem to have a beneficial effect. It is interesting that these agents should have a prompt and definite therapeutic effect in a disease previously suggested as a member of the collagen group. However, caution should be observed in concluding a similarity in the nature of the diseases because of the broad antipyretic and anergic properties of ACTH and cortisone.

SUMMARY

- 1. A case of Weber-Christian disease is presented.
- 2. Marked remission of objective and subjective signs of the disease were brought about by the use of ACTH and later cortisone therapy. Re-biopsy of a lesion after ACTH therapy revealed healing panniculitis.
- 3. This may be further evidence that Weber-Christian disease belongs to the large group of collagen diseases, many of which have already been benefited by the use of ACTH and cortisone.

REFERENCES

1. Brudno, James C.: "Chronic Relapsing Febrile Nodular Nonsuppurative Panniculitis" (Weber-Christian Disease). *N. E. J. M.*, Oct. 5, 1950.

2. Kennedy, R. J., and Murphy, L. R.: "Weber-Christian Disease." *Am. J. Med.*, 6:672-680, 1949.

3. Weber, F. P.: "Relapsing Nonsuppurative Nodular Panniculitis Showing Phagocytosis of Subcutaneous fat cells by Macrophages." *British Journal of Dermatology*, 37:301-311, 1925.

4. Christian, H. A.: "Relapsing Febrile Nodular Nonsuppurative Panniculitis." *Arch. Int. Med.*, 42:338-351, 1928.

5. Stockman, R.: "Chronic Muscular Rheumatism and Panniculitis." *British Medical Journal*, 1:293, 1928.

Cost of Living. Cost of house visits by physicians and rates for nonprofit health insurance plans are two items showing no change between mid-June and mid-September in the government's cost of living index. However, all other items used in arriving at the average cost of medical care and drugs for American families have shown a slight increase in the three-month period.

The latest report shows that cost of all medical care and drugs rose 1%, while the cost of living generally went up to 1.4%, during the period of June 15 and September 15. On the latter date, living costs were 86.6% above the 1935-1939 average, while medical care and drug costs were up 55.7%.

The government figures include the following percentage changes between June and September, compared with the pre-World War II base; medical care, excluding drugs, 60.5 to 61.6; all physicians' fees, 44.7 to 46; general practitioners' fees, 44.8 to 45.9; obstetrical fees, 65.2 to 68.6; surgeons' and specialists' fees, 43.4 to 45.7; dentists' fees, 59.4 to 61; hospital rates, 161.4 to 162.7; optometrists' fees, 34.9 to 35.3; prescriptions and drugs, 28.3 to 29.1. The Labor Department agency issues a monthly report on the cost of living but makes a breakdown on medical costs only quarterly. (*J. A. M. A.*, 11/24/51)

PROBLEMS ENCOUNTERED IN THE NEWBORN CHILD

A Symposium

BENJAMIN L. SHAPERO, M. D.,* EUGENE E. BROWN, M. D.,* FREDERIC C. EMERY, M. D.,*
and ALBERT W. FELLOWS, M. D.*

CARE OF THE PREMATURE INFANT

The importance of the special attention required in the treatment of the premature infant is apparent when one is aware that the mortality of prematures is approximately twenty times that of full-term infants. Any infant may be considered premature who meets two of the following three criteria: 1. Twenty-eight to thirty-eight weeks of intrauterine development; 2. One thousand to twenty-five hundred grams in weight; 3. Thirty-five to forty-seven centimeters in length.

A premature child starts his existence with numerous handicaps. He has poor body temperature control because of a large surface of radiation, poor fatty insulation, feeble muscular development and an underdeveloped sweating mechanism. His respiratory mechanism is deficient because of weak muscles, a soft thorax, poor gag and cough reflexes, incomplete development of capillaries and incomplete development of neuro-humoral control. He is a major feeding problem because of weak sucking and swallowing reflexes, a low secretion of hydrochloric acid, a faulty absorption of fat and an incomplete storage of iron and calcium. He has low resistance to infection and he has an increased capillary fragility.

The care of the premature infant begins with the onset of labor in the mother. If a premature infant is anticipated, morphine should not be given to the mother. Other analgesics should be used sparingly. The delivery should be conducted with low forceps and an episiotomy should be done when indicated to avoid a prolonged second stage. A heated crib and oxygen should be ready in the delivery room and the infant should be placed in this environment after his airway is gently aspirated. Because of the relative ease of intracranial injury, it is imperative to handle the infant with extreme gentleness.

After adequate respiration is established, the main objective is the maintenance of body heat. This is best accomplished by the use of the Hess or Armstrong bed. A temperature between 85-90° F. is maintained for the smallest infants, while that of 80-85° F. is maintained for the larger infants. The optimum rectal temperature for a premature child is about 99° F. The optimum humidity is from 55-65%. When a Hess or Armstrong bed is not available, one

can use a small well-heated room isolated from the rest of the nursery or a protected crib continually heated by an electric pad or hot-water bottle. The body heat may also be conserved by the use of cotton-wool jackets covering the entire body, except for the face. The infant is handled as little as possible. Feeding and treatments are carried out in the crib. Bathing should be delayed until progress is satisfactory. Prior to such time applications of vegetable oil are made. The infant is usually transferred from the incubator to a crib when his weight reaches two thousand grams. He may be placed on full-term routine when his weight is twenty-five hundred grams.

Each premature infant should be placed in an atmosphere of 30-50% oxygen during the first few hours of life regardless of his apparent condition. A definite improvement in respiratory rhythm is noted when oxygen is administered. Later, oxygen mixed with carbon dioxide is given, when necessary, to maintain respirations of good depth. Overbreathing must be avoided. The duration of administration must be determined by the respiratory response. When continuous oxygen is no longer needed the oxygen-carbon dioxide mixture should be given before and after each feeding. Oxygen therapy should be immediately resumed if the infant shows evidence of restlessness or fatigue, even though cyanosis may not be evident.

The premature infant lacks immunity to infections and must be protected in every way. If possible, air sterilization and isolation should be provided, and the infant should not be removed from the nursery. The attendance of a nurse experienced in the care of prematures is of the greatest importance.

The initial feeding should be given twelve hours after birth and is delayed for twenty-four hours or longer in smaller infants. The first feeding is 5% glucose or lactose, given with a medicine dropper to which is attached a rubber tube through which the solution is dropped on to the back of the tongue. Other methods of food administration include the Breck or Boston feeder, and gavage with a #10 or #12 French catheter. The latter is used when the swallowing reflex is impaired, when cyanosis accompanies feeding, or when the infant becomes excessively fatigued during his feeding.

The first feeding may be one dropperful. If this is retained, two dropperfuls may be given in two hours. Twenty-four hours after the first feeding

* From the Pediatric Service of the Eastern Maine General Hospital, Bangor, Maine.

period, a weak milk formula (ten calories per ounce) may be given at two-hour intervals. Sugar solutions should be given after each formula for the first few days if distress or diarrhea does not result. At the end of forty-eight to seventy-two hours, feeding intervals can be extended to three hours, and later to four hours if the infant is contented on this schedule.

The formula for such an infant should be one which supplies a relatively high protein, low fat and average carbohydrate content. The premature cannot absorb fats well, but can readily absorb protein and sugar. As the basal metabolic rate and activity are low in the first two weeks of life, only maintenance requirements need to be supplied.

A very satisfactory formula is the following:

	<i>Per Kg.</i>	<i>Per Lb.</i>
Half Skimmed Milk Powder	18 gm.	1 tbsp.
Alacta or Dryco Carbohydrates	11 gm.	2 tsp.
Water sufficient quantity	150 c.c.	2½ oz.

Formerly a caloric intake of 110 to 120 calories per kilogram per day was considered satisfactory, but recent studies on premature feedings¹ have revealed that the duration of hospitalization was reduced about one-third on a caloric intake of 180 to 200 calories per kilogram, when gastro-intestinal upsets did not occur. The fluid intake should be about 150 c.c. per kilogram and should be supplemented by clysis of Ringer's Lactate when oral fluids are inadequate.

Vitamin D, water soluble, with or without vitamin A should be instituted as soon as the feeding program is in satisfactory progress, giving 400 to 800 I. U. per day. Vitamin C should also be given early in an average dosage of 50 milligrams per day. Vitamin B is not urgently needed in the premature and is not routinely added to the diet. Some authorities add Vitamin E with the belief that it may help the infant to gain weight. Iron is not given, even though the infant needs this mineral because it is not absorbed and utilized until he is three months of age. Estrogenic hormones in dosage of 500 I. U. twice a day by mouth have been used with favorable claims, as has thyroid extract, in a dosage of 1/10 grain twice daily.

The premature infant may be discharged from the hospital to his home when he has maintained an average body temperature at environment of 70 to 75° F., has adjusted to a feeding schedule, has gained weight steadily, and does not have severe anemia. The average hospital stay is four weeks. Home care is a continuation of hospital routine with such modifications as may be necessary.

CYANOSIS OF THE NEWBORN

Cyanosis, whether generalized or localized, intermittent or constant, signifies imperfect oxygenation of the blood usually associated with difficulties in the

pulmonary, cardiovascular or central nervous systems. This imperfect oxygenation of the blood, anoxia, is recognized as a major hazard of the fetus or the newborn infant and is responsible for many neonatal deaths and for temporary or permanent cerebral damage. The truth of this statement can be realized when one thinks of Cole's statement² that about four minutes is the maximum time the brain cells can survive without oxygen and that irreversible changes may occur in less than one minute. This same author has expressed the belief that for practical purposes a newborn infant should be considered asphyxiated when breathing does not take place within 30 seconds.

Fetal anoxia (intrauterine anoxia), late in pregnancy, is generally due to disease of the placenta such as placental separation or erythroblastotic disease. Fetal anoxia during labor or delivery is well recognized. An acceleration of the fetal heart rate is usually indicative of mild anoxia, while the slowing of the heart rate is an ominous sign. Anoxia in this group may be caused by anything that diminishes the oxygen supply to the maternal side of the placenta, such as maternal analgesia or anaesthesia, heart failure, etc. Such causes of anoxemia are the problem of the obstetrician. However, pre-existing anoxia may interfere with normal respirations at birth, producing neonatal anoxia, the problem of the pediatrician. Extrauterine anoxia may be due to failure of the respiratory center to function, mechanical obstruction of the airways from aspirated fluid, mucus, meconium, etc., pathologic changes in the lungs, or congenital malformations of the respiratory tree or heart.

The asphyxiated infant according to Clifford,³ may be classified into one of the three following categories:

1. *Mild asphyxia* in which breathing does not take place within thirty seconds of the birth of the head, muscle tonus is good, the conjunctival and gag reflexes are present, the heart rate is normal or rapid, and in which fluid and mucous plugs may fill the airways. This first group must be differentiated from narcotized infants.
2. *Moderate asphyxia* in which muscle tone is poor, no resistance is offered to opening the mouth, the gag reflex is absent, and in which the heart rate is at first rapid but later becomes exceedingly slow.
3. *Severe asphyxia* in which there is no response to attempts at resuscitation, there is an absence of respiratory movements, the heart sounds are feeble and there is asphyxia livida or pallida.

The condition of the asphyxiated newborn infant is never static. If mild asphyxia is present at birth, the baby either recovers rapidly or goes through the moderate and severe stages to death. This latter possibility should always be borne in mind when treatment is being instituted for a mildly asphyxiated infant.

Nearly all cases of cyanosis in the newborn are caused by lesions of the respiratory, circulatory or central nervous system.

A. THE RESPIRATORY SYSTEM

Atelectasis is the normal condition of the lung before birth and congenital atelectasis is an abnormal persistence of incomplete expansion of the lungs. It is intimately associated with fetal anoxia. Under normal conditions expansion follows a constant pattern and aeration proceeds by an increase in the number of aerated alveoli, rather than a gradual increase in the volume of each alveolus. Areas of complete atelectasis alternate with aerated portions of lung. Several days may elapse before expansion is complete.

An atelectatic state may persist when there is obstruction in the bronchial tree, cerebral damage involving the respiratory center, anatomic and physiologic immaturity of the respiratory system (as in the premature), when the thorax or respiratory muscles are poorly developed, when there is marked cohesion of the air passages, when the heart is enlarged, and in the presence of diaphragmatic hernia, tumors, or paralysis of the phrenic nerve.

The symptoms of congenital atelectasis vary considerably depending upon the degree of involvement. In the mildest cases the atelectasis may not be detected by clinical appearance or physical findings, but in the more severe cases there is usually evidence of respiratory distress. Respirations are shallow and rapid and movements are mostly abdominal. There may be a respiratory grunt and the infant is markedly cyanotic. When he is stimulated to cry, the cyanosis usually diminishes. Physical examination may reveal suprasternal retraction with diaphragmatic tug of the lower ribs and diminished thoracic expansion on one or both sides. Areas of dullness may be detected and at times inspiratory rales may be heard. Often, however, the atelectatic area is not detected by physical examination. It is important to remember that the small amount of expanded lung which is required to produce a normal response to auscultation and percussion may be entirely inadequate for the physiologic requirements of the infant. Heart sounds are usually elicited. Bradycardia is noted when respiratory failure is imminent. Mucus may be present in the naso-pharynx. There is no fever except that which may be due to dehydration or to central effect. Roentgenograms of the chest provide the best means for accurate diagnosis.

The prognosis depends upon the establishment of adequate expansion of the lung and the prevention of intercurrent infection. When death occurs it is usually within twelve to forty-eight hours after birth. Clinical and X-ray improvement take place sharply between the third and fourth day. At this time the

vernix membrane, as well as the pulmonary congestion and edema are largely absorbed. Sequelae depend upon the extent of the damage to the central nervous system caused by the anoxia.

The prevention of atelectasis depends upon the prevention of intrauterine anoxia, birth injuries, prematurity, and aspiration of mucus.

The treatment consists of the constant administration of oxygen bubbled through water, the use of suction to aspirate the oral, nasal, and posterior pharyngeal cavities, the administration of carbon dioxide for periods of a few minutes at hourly intervals in order to stimulate deeper and more regular respirations and to render the mucus less viscid and tenacious, snapping the fingers on the soles of the infant's feet every two to three hours to promote crying, which is an efficient means of producing pulmonary expansion, frequent changes of position to prevent further atelectasis, abstention from oral feedings for at least forty-eight hours, the parenteral maintenance of fluid balance, the maintenance of adequate body temperature and the prophylactic administration of penicillin. The use of positive pressure for expanding atelectatic lung is a dangerous procedure as it may convert the few functioning alveoli into emphysematous blebs that may rupture and produce pneumothorax. In any severe asphyxia direct tracheal suction by trained individuals is indicated. Clifford³ recommends bronchoscopic drainage by trained personnel when there is a localized obstruction, a sudden asphyxia following an accident such as the aspiration of milk, or when there is a suspicion of developmental abnormality.

Pneumothorax is much more common than is usually appreciated, occurring in about one per cent of all newborns. In the newborn infant, escape of air into tissues or spaces, where it is normally not present, may follow infection, birth trauma or injury from resuscitation efforts, but in the majority of instances it results from the rupture of over-inflated alveoli which may occur in association with atelectasis, congenital heart disease or anoxia. When the amount of air which escapes is not great, no symptoms are apparent. When the quantity of air is great, the air follows the vascular sheaths to the mediastinum where it accumulates and embarrasses respiration. When the tension in the mediastinum is sufficient, the air may be forced into one or both of the pleural cavities. Pneumothorax may also result from rupture of distended alveoli or blebs directly into the pleural space.

The onset of pneumothorax is usually sudden and is characterized by limited respiratory excursions, dyspnea and cyanosis. The heart sounds are distant and generally the heart is displaced to the opposite side. The percussion note is hyperresonant and the

breath sounds are diminished or absent. Roentgenographic examination establishes the diagnosis.

The prognosis depends upon the degree of respiratory embarrassment, its duration and the relief obtained by aspiration in the severe cases.

The incidence of pneumothorax can be diminished by the prevention of birth trauma and of trauma during efforts at resuscitation.

No treatment is necessary in many instances where the symptoms are mild, and the air may be absorbed spontaneously. Oxygen, parenteral fluids and aspiration of air from an encapsulated pneumothorax are necessary when there is serious respiratory distress. If there is a recurrence of a pneumothorax because of an open fistula it may be necessary to perform a closed thoracotomy and connect the tube to a water trap, allowing air to escape from but not enter the pleural cavity.

Bronchial Obstruction may be due to aspiration of mucus, blood or contents of the amniotic sac. This condition necessitates the immediate clearing of the air passages. The most efficient method of accomplishing this is by direct laryngoscopy and tracheal suction, provided trained personnel are available. Lacking the necessary personnel, postural drainage with gentle milking of the trachea, suction of the mouth and nasopharynx and tracheal suction through a rubber catheter introduced under digital direction, should be used.

Tumors within and without the respiratory tree are exceedingly rare and when encountered are usually treated by surgery or X-ray.

Congenital Defects of the respiratory system are frequently responsible for cyanosis in the newborn. The symptoms of tracheoesophageal fistula where the upper esophageal segment ends in a blind pouch and the lower segment from the stomach is connected to the trachea, are classic. As the newborn infant is fed, the first swallow or two is normal; then suddenly the fluids return through the nose and mouth; the infant coughs, struggles, turns cyanotic and may stop breathing. Between feedings there is a constant drooling from the dependent corner of the mouth. The diagnosis is usually suggested by the history and is confirmed by roentgenologic studies using Lipiodol. Barium should not be used. The treatment of this condition is surgical.

Diaphragmatic hernia is caused by a congenital defect in the diaphragm, in most cases on the left side. Through this a loop of the intestine, stomach, or colon may be thrust into the thorax. Symptoms may be entirely lacking or there may be acute symptoms including dyspnea, cyanosis, persistent vomiting and occasionally evidences of intestinal obstruction. The physical findings vary considerably depending upon

the amount of intestine in the thorax. The percussion note may be tympanitic. Intestinal peristaltic movements may be heard over the chest. Heart sounds may be distant and the heart may be displaced. Roentgenograms establish the diagnosis. The treatment is surgical.

Aspiration pneumonia may result from the aspiration of amniotic fluid and its contents. Normally, there is no expansion of the lungs with intrauterine respiratory movements. Amniotic fluid is present, but only during states of hypoxia, when the fetus gasps, is it inhaled. There may or may not be an explanation for the inadequate supply of oxygen in utero. Separation of the placenta, toxemia, and prolapse of the cord are frequent factors. Aspiration pneumonia should be suspected when there is a history of intrauterine fetal embarrassment, difficult resuscitation at birth, cyanosis and respiratory distress during the immediate neonatal period, frothy mucoid fluid in the nasopharynx, or crepitant rales, rhonchi or consolidation associated with obstructive emphysema. Roentgenographically there may be patchy or extensive areas of atelectasis and as a rule, marked obstructive emphysema. The mortality rate is exceedingly high. Prevention of this condition includes an adequate supply of oxygen for the fetus and immediate aspiration of any material in the nasopharynx or trachea before the newborn infant breathes. Nasopharyngeal, tracheal and bronchoscopic aspiration is effective in removing mucus from the larger airways. The alternate administration of oxygen and oxygen with carbon dioxide as described under atelectasis is indicated. The carbon dioxide may counteract the drying effect of oxygen and if the material is kept in a fluid state removal is facilitated. Antibiotic therapy must be instituted.

Bacterial and viral pneumonias are usually not present at birth but develop insidiously due to direct bacterial or viral invasion or may be superimposed upon persistent atelectasis. There is generally an increase in respiratory rate, cyanotic attacks, loss of weight, possibly prostration and abdominal distention. Fever may or may not be present. Physical findings in the chest may be much less definite than those in older children, and it is not unusual to have extensive involvement with few or no abnormal percussion or auscultatory signs. The diagnosis can be established by X-ray. The treatment consists of parenteral fluids, oxygen, and antibiotics.

B. CENTRAL NERVOUS SYSTEM

Depression of the respiratory center may result from direct injury in the area of the medulla (birth injuries) or from anoxia. Asphyxia may cause cerebral edema or may produce petechial or larger hemorrhages into the brain substance and even bleeding

into the subarachnoid space. Either factor, birth injury or anoxia, may raise the threshold of stimulation of the respiratory center resulting in a variety of symptoms as unconsciousness, convulsions, cyanosis, weak or irregular respirations, relatively long periods of apnea, failure to nurse and an absent Moro reflex. This condition can usually be detected by palpating increased intracranial tension in the fontanel. A lumbar puncture is indicated both for diagnostic and therapeutic reasons. If the number of red cells is few enough to count without dilution in the blood-counting chamber, the injury is interpreted as probably the result of anoxic bleeding. According to Clifford³ five or ten cubic centimeters of fluid should be slowly removed and the procedure repeated every twelve to twenty-four hours, as clinically indicated, until the fluid is nearly normal. This method of treatment gives symptomatic relief, minimizes pressure injury and helps to prevent the later development of hydrocephalus. Clifford believes that the withdrawal of fluid does not result in increased intracranial bleeding.

C. CIRCULATORY SYSTEM

Persistent cyanosis accompanying cardiac disease is usually caused by the shunting of venous blood from the right to the left side of the heart so that it passes into the systemic circulation without becoming aerated in the lungs. At least five grams of reduced hemoglobin per one hundred cubic centimeters of circulating blood are necessary to give a bluish discoloration to the skin. The occurrence of cyanosis in a patient with a congenital malformation of the heart is indicative of a gross abnormality. Cyanosis resulting from these lesions is increased by crying.

The most frequent cardiac lesions causing persistent cyanosis are dextroposition of the aorta or transposition of the great vessels, large defects in, or the absence of the interatrial or interventricular septums, and interatrial or interventricular septal defects associated with stenosis or atresia of the pulmonary artery or tricuspid valve. There is very little that can be done in the immediate neonatal period except the obvious symptomatic treatment consisting of oxygen, heat, fluids and possible digitalization. Surgical advances have made accurate diagnosis very important. Although most diagnoses cannot be made in the neonatal period, X-ray, fluoroscopy, and electrocardiographic tracings may be of future value. Exercise tests and catheterization of the heart, although they provide important information of cardiac deformities, cannot be performed at this age.

Methemoglobinemia and sulfhemoglobinemia are extremely rare and consequently do not warrant a detailed discussion.

D. ADRENAL HEMORRHAGE

Massive adrenal hemorrhage at birth occurs mainly in breech presentations. The infant may be stillborn or may die shortly after birth in profound shock with cyanosis and hyperthermia. The adrenal gland is friable and the hemorrhage probably occurs from direct trauma to the renal areas either during labor or at delivery. The adrenal gland, enlarged by the hemorrhage, may be palpable. If the diagnosis is suspected, ACTH, glucose and saline, blood transfusions and oxygen should be administered. Hemorrhage is usually so extensive that death ensues before therapy can be effective.

Hemorrhages of less extent also occur in the adrenal gland of the newborn infant. They may be due to anoxia. Later in the newborn period they may occur as part of the clinical manifestations of hemorrhagic disease of the newborn.

JAUNDICE IN THE NEWBORN PERIOD

Jaundice seen during the newborn period usually can be classed in one of five groups: physiological, erythroblastotic, obstructive, septic, or luetic.

Icterus neonatorum has long been considered evidence of red blood cell destruction and the break down of excess hemoglobin. Although this is an important factor, more recent evidence⁴ suggests that some immaturity of the liver, in its function of excreting bile pigments, may be present. Some visible jaundice appears in 50% to 75% of all newborn infants. It usually appears between the second and sixth day of life, but in about 25% the jaundice will appear in the first twenty-four hours. The jaundice clears between the seventh and fourteenth day, occasionally persisting for a month. It is much more common to see it appear in the first twenty-four hours than to see it last for more than fourteen days. It is generally mild in intensity but some infants may be deeply discolored. The spleen is not enlarged. The stools are normal. There is no anemia and no associated hemorrhagic tendencies. The infant suffers no ill effects other than occasional lethargy and failure to nurse well. No treatment is needed except the use of parenteral fluids when the lethargy and dehydration become severe.

Erythroblastotic jaundice is suspected when the correct Rh situation exists and the child becomes jaundiced soon after birth. In severe cases it is present at birth with edema, yellowish vernix, a stained umbilical cord, and a large placenta. The infant will show an enlarged liver and spleen and varying degrees of anemia. In the milder cases such a picture may develop in the first twenty-four to thirty-six hours. The blood shows a percentage of nucleated red blood cells greater than 10 to 12 per 100 white

blood cells. The Coombs test is positive. The treatment is blood transfusion of compatible Rh negative blood from a female donor. In selected cases this should be by replacement transfusion. Other patients may be carried along by repeated small transfusions. The use of ACTH in this condition is as yet in the research stage but looks encouraging.

Erythroblastosis icterus precox is a somewhat similar picture not due to Rh incompatibility.^{5, 6} This is caused by sensitization of a mother with group O blood, containing anti-A and anti-B agglutinins, by the group A or group B blood of the fetus producing an A-B-O incompatibility. The situation is usually not serious but may become sufficiently severe to require transfusion therapy.

In obstructive jaundice of the newborn, the fault is in the biliary system. This may be a congenital atresia or congenital absence of the bile ducts, or other type of malformation. At times the jaundice may be caused by a plug of inspissated mucus or bile. The infant's general condition may be good. He eats well and seems vigorous and alert. Constipation is common. The jaundice appears soon after birth and increases in intensity. The icteric index becomes markedly elevated. Eventually the child becomes worse and develops roughened skin and ecchymoses. Evidences of fat-soluble vitamin deficiency appear. The liver is always enlarged and later the spleen becomes palpable. The stools are clay colored. When the jaundice is extreme, the body tissues may be so stained with bile that the intestinal mucosal secretions are bile-tinged thus imparting some color to the stool. This might be confused with true fecal bile pigment and tend to lead one away from the diagnosis of biliary obstruction. At first there is no fever, but as the condition progresses the infant usually develops infection and fever. Ascites is common. The prognosis is poor. If no treatment is instituted the infant rarely survives more than five or six months. The treatment consists of a low fat and high vitamin diet with adequate fluid intake. Early in the disease it is wise to instill 10-15 c.c. of 25% magnesium sulfate solution into the duodenum through a tube. This will usually dissolve and clear up any inspissated plug. Improvement is often rapid. If no improvement is seen in four or five days, surgery is indicated for exploration and correction of any malformation. Surgery is best done around four weeks of age and can correct the abnormality in about 20% of the cases.⁷ In the majority of instances the malformation is such that nothing can be done.

Jaundice due to sepsis of the newborn is becoming less and less common. Etiologically the infection is usually due to the colon bacillus which acquires entrance through an infected umbilical stump or circumcision wound. The symptoms are variable. They may be fulminating with all the evidences of an acute

infection, or there may be no definite symptoms. There may be no fever. One may see only a baby who is not gaining well, who refuses to eat, or who is very lethargic, and, later in the newborn period, begins to develop jaundice of the hemolytic type. The liver and spleen enlarge, jaundice increases, and nervous manifestations such as restlessness, irregular respirations and convulsions may develop. Diagnosis is established by a positive blood culture, and treatment consists of the use of antibiotics and supportive measures. The antibiotic to be selected will depend on the type of bacteria present. Other measures include small blood transfusions, adequate fluid balance, the use of adrenal cortical extract, oxygen, stimulants, and the local care of any focus of infection which can be found.

The jaundice seen in luetic infants may appear at any time after birth but usually appears between the second and sixth week. With routine maternal serological tests and adequate maternal treatment of syphilis the condition is seldom seen but must be included in a differential diagnosis. One can almost always find other evidences of the disease in skin lesions, mucosal lesions, or bone involvement. Practically 100% of luetic newborns show some bone changes at autopsy, but only 5% to 10% will show X-ray changes. In about two to three weeks the bone pathology becomes visible by X-ray. The liver and spleen are enlarged, the infant develops "snuffles" and there may be pseudo-paralyses. The serology is conclusive. There is usually a severe anemia and nucleated red blood cells are seen in smears of peripheral blood. The treatment of choice is penicillin, with a total dosage of 100,000 units per pound of body weight given over a twelve to fourteen day period in equal three hourly injections.

VISIBLE PHYSICAL DEFECTS OF THE NEWBORN

"Club foot" is a term used to describe the medially deviated foot. If there is no bony malformation, the foot can be passively overcorrected. This should be started at once and carried out at each change of diaper. If the foot cannot be corrected by gentle manipulation there is probably a bony malformation. In this case the baby should be referred to an orthopedist and treatment started immediately.

Congenital dislocation of the hip is easily missed in the newborn period because the muscles have not yet pulled the head of the femur much out of place. Certain maneuvers are helpful in detecting the condition. Alternate pull and push on the thigh in the long axis of the bone may demonstrate abnormal mobility on the affected side. If the thighs are flexed and the soles placed flat on the table, one knee may be lower than the other. Circumduction of the flexed thigh may elicit a click. The only constant sign is

limitation of motion on abduction of the thigh of the affected side. Place the baby on his back, flex the thighs and then abduct. The knees should go down almost to the table. Limitation of motion indicates dislocation. Treatment should be started without delay. An excellent method to be used in very small babies is illustrated in the Mitchell-Nelson Textbook of Pediatrics.⁸

Torticollis in the newborn is usually due to a hematoma or fibroma in the sternocleidomastoid muscle. The tumor may not be felt for three to seven days. If there is torticollis without a tumor, the neck should be X-rayed for abnormalities in the upper cervical vertebrae or for the presence of a cervical rib. If manipulation does not restore the normal position of the head, early operation should be performed.

Webbed fingers may be operated on at three to five years of age. If more than two fingers are webbed, two or more operations are necessary. X-rays should be taken to rule out fusion of the bones. Webbed toes need not be operated on if function is good, but operation may be done for cosmetic effect.

Supernumerary digits may be removed any time after six months, as there will be little hemorrhage. These cases may have other abnormalities showing up later.

Undescended testes will usually descend of themselves. Operation is not necessary before the age of ten unless hernia develops, or a testicle becomes painful from pinching in the canal. Hormone treatment is not indicated before the age of ten, and then is of doubtful value.

Hydrocele of the tunica vaginalis is not uncommon and needs no treatment as it practically always disappears. Hydrocele of the cord does not fluctuate in size, and transilluminates. It will need operation some time as a hernia is practically sure to develop.

Hypospadias presents, in infancy, only the problem of assuring unobstructed urinary flow. The meatus may have to be dilated. The more severe types will need operation at eight or ten years when the penis has achieved some growth. Chordee, when present, must be corrected first.

Inguinal hernias are not common in the newborn, but occur frequently in older babies. They can generally be held well by a yarn truss, or by the home-made one described by Potts.⁹ Operation can usually be deferred until the age of two.

Umbilical hernias are common and can nearly always be cured by adhesive strapping applied to approximate the edges of the rectus muscles. Coins and buttons over the navel are of no value. Large umbili-

cal defects such as hernia into the cord and omphalocele must be operated upon at once. Prognosis should be guarded as there may not be room in the abdomen for the herniated bowel.

Spina bifida with no nerve involvement is usually a simple meningocele. These have a normal skin covering, a more pedicled base, and only a small defect in the spine. Operation can be done at any time in the first few weeks. Postoperative hydrocephalus may occur and can neither be foreseen nor prevented. Operation does not benefit the nerve involvement of meningo-myeloceles or of myeloceles.

Operation for cleft lip (harelip) is urgent or not, depending on whether there is an associated defect of the maxillary bone. If there is a defect, especially if the premaxilla projects forward, operation should be done at three to five weeks. The bone is softer, more easily put into line, and there is less danger of injuring the teeth buds. If there is no defect in the bone, operation can be done at any time, but is usually done at three months to correct an unsightly lip. The baby must be in good condition, gaining well, and free of respiratory infection.

Babies with cleft palate occasionally present a feeding problem. Difficulties can be overcome by using a large nipple with a large hole, a Breck feeder, or by spoon or dropper feeding. Operation may be done at eighteen to twenty-four months. There must be no naso-pharyngitis. Subsequent speech training is often necessary.

SUMMARY

The Pediatric Staff of the Eastern Maine General Hospital has presented a discussion of some of the bothersome problems of the newborn period. The symposium includes: I. Care of the premature infant, II. Cyanosis of the newborn, III. Jaundice in the newborn period and IV. Visible physical defects of the newborn.

REFERENCES

1. Hardy, J. B.: *J. Pediat.*, 38:154, 1951.
2. Cole, W. C. C.: *J. Pediat.*, 19:258, 1941.
3. Clifford, S. H.: *Am. J. Dis. Child.*, 76:666, 1948.
4. Findlay, L., Higgins, G., and Stanur, M. W.: *Arch. Dis. Child.*, 22:65, 1947.
5. Halbrecht, I.: *Am. J. Dis. Child.*, 68:248, 1944.
6. Vogel, P.: *Bull., N. Y. Acad. Med.*, 25:261, 1949.
7. Ladd, W. E., and Gross, R. E.: *Surgery of Infancy and Childhood*.
8. Mitchell-Nelson: *Textbook of Pediatrics*, p. 1477, Philadelphia, Pa., W. B. Saunders, 1950.
9. Potts, W. J.: *J. A. M. A.*, 117, 1440, 1941.

CHLOROQUINE IN THE TREATMENT OF ACUTE AMEBIC ABSCESS OF THE CAECUM*

A Case Report

G. JAMES TOBIAS, M. D. (formerly Capt., MC, AUS)** BERNARD G. ANDERSON, M. D. (formerly Capt., MC, AUS)

It has been shown recently that chloroquine is effective in the treatment of hepatic and intestinal amebiasis.

The response of hepatic amebiasis to chloroquine has been dramatic.¹⁻⁶ The results in intestinal amebiasis have been less satisfactory. Conan observed symptomatic and parasitologic cure in seventeen of thirty-two cases of intestinal amebiasis treated only with chloroquine diphosphate in the dosage of one gm. for two days followed by .5 gm. of the drug for an additional twelve to nineteen days. In ten cases of intestinal amebiasis treated with chloroquine alone by one of us (G. J. T.) with doses ranging up to 4.0 gm. daily for twenty-one days the drug was again found to be only about 50% effective in achieving a parasitologic remission for two months or longer. It has been found that chloroquine is extensively localized in the liver, and that it is also localized within the intestinal walls, but to a lesser degree.² However it is almost completely absorbed from the lumen of the gastrointestinal tract, and only about 8 per cent of the daily dose is excreted in the feces. Chloroquine is relatively non-toxic, and unlike emetine, can be administered safely to ambulatory patients. Although amebiasis is more prevalent in the tropics, Craig⁷ estimates that the average incidence of infection in the United States is approximately 10 per cent. With the return of veterans from various endemic areas, physicians in all parts of the country should be on the lookout for the disease. The following case report is presented because of the excellent response to chloroquine of an amebic abscess of the caecum.

CASE REPORT

A 19-year-old white soldier with three months' service in the P. I. entered Clark Air Force Base Hospital on June 7, 1949, with a history of 3-4 watery bowel movements daily for two weeks and severe cramping right lower quadrant pain of one day's duration. He was in excellent health until two weeks before entry when he and two other soldiers first noticed loose watery bowel movements about

twenty-four hours after the ingestion of inadequately cooked oysters. When the diarrhea continued for several days he reported to the dispensary where physical examination was within normal limits and one stool examination was negative for ova and parasites. He was given a diarrhea mixture consisting of paregoric and bismuth and continued to do active duty. Three days before entry the patient developed a moderately severe, cramping, epigastric pain which after two days shifted to the right lower quadrant where it was of dull continuous aching nature aggravated by motion with intermittent severe cramps. There was no history of bloody or purulent stools, nausea, vomiting, chills or jaundice. Physical examination on entry revealed an acutely ill patient complaining of severe right lower quadrant cramps. The oral temperature was 102° F., pulse 108, and blood pressure 118/74.

On inspection, the abdomen was flat with the suggestion of a mass in the right lower quadrant. Palpation showed deep tenderness with moderate guarding and a very tender, soft, diffuse mass about 6 cm. in diameter in the same area. There was no rebound tenderness and peristalsis was normal. Rectal examination revealed slight tenderness high on the right anteriorly but no mass was palpable. There was no jaundice. Physical examination was otherwise negative.

Laboratory studies showed a leucocytosis of 18,000 with 80% neutrophils, 19% lymphocytes, and 1% eosinophils. Red blood cell count, hemoglobin, urine, Kahn and chest X-ray were normal. No stool specimen was available at entry and examination of the rectal glove specimen was negative.

The diagnosis of appendiceal abscess was entertained; however, it was thought that the diagnosis of amebic dysentery with amebic abscess or granuloma of the caecum was more compatible with the history and findings. The patient was given 1.0 gm. of chloroquine diphosphate.* A few hours later two watery stool specimens were obtained which showed many trophozoites of *Endamoeba histolytica* and *Endamoeba coli* as well as occasional pus cells and a trace of occult blood.

The next day he was again given 1.0 gm. of chloro-

* No objection to publication on grounds of military security, 27 Feb., 1950,⁴ Office of Public Information, Department of Defense.

** Teaching Resident in Medicine, Eastern Maine General Hospital, Resident in Medicine, New England Medical Center, Boston, Mass.

* Aralen diphosphate, Winthrop-Stearns, Inc., .25 gm. of Chloroquine Diphosphate contains .15 gm. of chloroquine base.

quine diphosphate which was followed by 0.5 gms. on each of the subsequent three days.

During the first twenty-four hours, the patient continued to have fever to 102.8° F. After the second day the fever did not exceed 100° F., and after the fourth day the patient was afebrile. Also by the fourth hospital day, the leucocytosis had decreased to 10,000, the stools had decreased to one well formed movement daily; there was minimal right lower quadrant tenderness and the mass was barely discernible.

All subsequent stool examinations were negative for *E. histolytica*.

On the sixth day after admission the right lower quadrant mass was no longer palpable but minimal tenderness persisted for three more weeks.

After five days of chloroquine therapy the patient was placed on 2.6 gms. of diodoquin daily for ten days followed by .8 gms. of carbarsone daily for ten more days.

One month after entry, sigmoidoscopy to 18 cm., barium enema, stool and blood examinations were normal. The patient was asymptomatic and was returned to active duty.

Six months later the patient was still asymptomatic and stool examination was negative on three consecutive days.

COMMENT

Because of the findings of an exquisitely tender mass in the region of the caecum, with fever, leukocytosis, and the demonstration of *E. histolytica* trophozoites in the feces, it is believed that a diagnosis of amebic abscess or granuloma of the wall of the caecum is justified. The prompt improvement in the clinical appearance of the patient and the disappearance of amebae from the feces suggest that chloroquine was responsible for the results. It is realized that the dosage employed was administered over a much shorter period of time than that used and recommended in other reports. The reason for

this is that at the time the patient was treated, the authors had no information available concerning the optimum dosage, so elected to employ a treatment schedule similar to that used for malaria. .5 gms. daily of the chloroquine diphosphate, for 2 to 3 weeks, after initial loading dose of 1.0 gms. daily for 2 days, now appears to be the recommended dose for hepatic amebiasis. Conan² stresses the fact that drugs which are more effective against intestinal amebiasis, e.g. carbarsone and diodoquin, should be used when treating hepatic amebiasis whether intestinal symptoms are present or not. Conversely, it is also recommended that chloroquine be given to eradicate any possible extraintestinal foci whenever a case of intestinal amebiasis is being treated.

SUMMARY

A case of amebic dysentery, complicated by the presence of a mass in the right lower quadrant which was considered to be an amebic abscess or granuloma of the caecum, was successfully treated with chloroquine.

REFERENCES

1. Conan, N. J., Jr.: Chloroquine in Amebiasis, American Journal Trop. Med., 28:107, 1948.
2. Conan, N. J., Jr.: The Treatment of Hepatic Amebiasis with Chloroquine, American Journal Med., 6:309, 1949, Vol. VI, No. 3.
3. Emmett, J.: Refractory Amebic Abscess of the Liver Treated with Chloroquine, J. A. M. A., 141:22, Sept. 3, 1949.
4. Manson-Bahr, P.: Treatment of Amebic Liver Abscess with Chloroquine, Jour. Trop. Med., 52:91, 1949.
5. Basnuevo, J. G., and Gutierrez Estarli, E.: Siete casos de hepatitis tratados con cloroquina, Rev. Kuba, 6:45, 1950.
6. Sodeman, W. A., Doerner, A. A., Gordon, E. M., and Gillikin, C. M.: Chloroquine in Hepatic Amebiasis, Annals of Internal Medicine, 35:331, Aug., 1951.
7. Craig, C. F.: The Etiology, Diagnosis, and Treatment of Amebiasis, The Williams and Wilkins Company, Baltimore, 1944.

Dependent Population Declines. Releasing a survey of costs and case loads in public aid, the Federal Security Agency points out that the proportion of the population dependent on some form of public assistance has declined from 11.2% in 1950 to less than 4% at present. It notes that currently the needy are almost exclusively the very old, the very young, and the disabled, whereas 10 years ago many able-bodied adults were on the various work relief programs.

The following factors were held responsible for

decline in relief rolls: 1. Broader coverage of old age and survivors' insurance under U. S. Social Security. For the country as a whole, old age insurance beneficiaries now exceed by nearly half a million the number of old age assistance recipients. In June, 1950, before the more liberal program went into effect, old age assistance recipients exceeded old age insurance recipients by 682,000. 2. Better economic conditions which enable more families to support their dependent members without resort to public aid. (*J. A. M. A.*, 12/1/51)

CLINICO-PATHOLOGICAL EXERCISE

Case presented at Eastern Maine General Hospital, Bangor, Maine

Edited by RICHARD C. WADSWORTH, M. D.

This 64-year-old Russian male was admitted to the Eastern Maine General Hospital on September 27, 1950, because of intractable asthma. He had had asthma for five or six years. His present asthmatic attack is of five weeks' duration. His physician says that his attacks are brought on by upper respiratory infections. His left leg is said to have been amputated because of Buerger's Disease. There was a history of smoking up to five packages of cigarettes daily. His mother died of heart disease. His father died of asthma.

Physical examination reveals a short male with emphysematous chest, good color, marked dyspnea and audible wheezing. There are musical rales throughout both lung fields. The pulse is regular. Temperature 98.0° F.; Pulse 96; Respirations 28; Blood pressure 110/70 mm. Hg. There is no distention of the neck veins. The liver is palpable. The spleen is felt below the left costal margin. No other abnormal masses are noted. There is a mid-thigh amputation on the left. The stump appears healthy. There is no demonstrable femoral pulsation.

Laboratory Findings:

Urine (9-28-50): Amber; acid; 1.023; Albumin 0.1 gms. per 100 c.c.; sugar negative; acetone one plus; diacetic acid negative. Microscopic reveals occasional finely granular casts, occasional polys and occasional erythrocytes.

Blood (9-28-50): Hb. 15 gms. (96%); Cell volume 40%; WBC. 6,750; Polys 72%; Eos. 4%; Bands 2%; Lymphs 12%; Monos 10%; Dextrose 82 mg./100 c.c.; NPN 39 mg./100 c.c. (10-2-50) Total Proteins 6.9 gms./100 c.c.; Alb./glob. 5.2/1.7 gm./100 c.c.; Gastric washings (10-2-50) Smear negative for tubercle bacilli; (10-3-50) Smear negative for tubercle bacilli. Sputum (10-2-50) (24 hr. spec.) Smear negative for tubercle bacilli.

X-rays (9-29-50): Examination of the chest shows diffuse, linear and nodular exaggeration of the lung markings throughout either lung field most marked in rather wide bands extending from the hila to the periphery. No definite nodule enlargement is seen. No pleural fluid or mediastinal mass is evident. Involvement seems most marked in the posterior basal portion of the upper lobes. The heart is slightly enlarged and its configuration suggests hypertension. The aorta is not remarkable and the bony structures of the thorax are not unusual.

(10-10-50): The slowly fibrosing, rather extensive, pulmonary lesion of bilateral nature has changed very little from the examination of 9-29-50. There is no sign of cavitation and no gross enlargement of the hilar nodes.

E.K.G.: Myocardial damage manifested by left bundle branch block.

Course in Hospital: He was placed in an oxygen tent and given aminophyllin, chloral hydrate, potassium iodide, and adrenalin. His asthmatic symptoms improved. He continued to be moderately dyspneic, but his color improved. He seemed to do as well outside of the oxygen tent as when he was receiving oxygen. *Tuberculin test was negative.* He was given 1 c.c. of typhoid antigen in an attempt to break up the asthmatic cycle. He continued to have considerable dyspnea and wheezing. For no apparent reason his temperature suddenly rose on November 2, 1950, from 95.0° to 98.8° F. It dropped back to 95.0° on the following day. He expired on November 6, 1950, at 9.25 p. m.

DIFFERENTIAL DIAGNOSIS

Dr. Robert O. Kellogg: We are discussing a sixty-four-year-old Russian male with recurrent bouts of dyspnea of five years' duration, which continued, almost unabated, for his six-weeks' hospital stay. There is evidence of wide spread vascular disease as manifested by the leg amputation, the enlarged heart and bundle branch block, probable renal vascular disease and possible pulmonary vascular disease.

Referring back to the history in this case, I should like to ask Dr. Drew if the patient has had chest pain or cough and if we know what the pathological arterial lesion was in the amputated leg.

Dr. Drew: The patient had no chest pain, he had a non-productive cough when his wheezing was most severe; it was non-productive and non-persistent. The leg was amputated at another hospital and pathological examination was not performed.

Dr. Kellogg: For sake of convenience, we will separate the differential diagnosis of cardiac from pulmonary lesion.

Tuberculosis, mycotic infection, and atypical pneumonia are mentioned only in passing, as being unlikely diagnoses. The negative skin test for tuberculosis, the negative sputa and gastric washings are helpful in ruling out the former. The sputum was

not cultured for fungi, and the long course with the additional finding of splenomegaly is against virus pneumonia.

Neoplasm must be considered but I believe it unlikely. Lymphatic pulmonary dissemination of adenocarcinoma arising in the stomach, pancreas, or bronchus is a possibility. Lymphoma with splenomegaly and interstitial pulmonary invasion is another possibility. However, absence of peripheral lymph nodes, anemia, and fever in a man sick enough to die, would seem to me to be unlikely, if this were a case of lymphoma. His peripheral blood smear was normal, bone marrow examination was not performed.

Collagen disease seems to be a likely diagnosis in this case. All the findings could be attributed to periarteritis nodosa. The long history of asthma associated with occlusive vascular episodes as manifested by the amputation, the bundle branch block, the abnormal urinary findings, and the chest X-ray, and the splenomegaly could be explained by this diffuse vascular disorder.

Boeck's Sarcoid seems to me to be the most likely explanation for this clinical picture. The splenomegaly, bilateral pulmonary infiltration and long course, in the presence of a negative tuberculin skin test are all suggestive of this diagnosis. The serum globulin is normal, and X-rays of the hands are not described.

The presence of a left bundle block with an enlarged heart and normal blood pressure suggests coronary sclerosis with myocardial fibrosis and possible myocardial infarct. To make a diagnosis of coronary occlusion and myocardial infarction in the presence of bundle branch block, is always difficult. In this case, I think multiple small infarctions in the past and a terminal infarction would account for his rather sudden exitus. The possibility of a massive terminal pulmonary embolus is also to be considered. May we have the X-ray films interpreted?

Dr. Smith: Films of the chest taken September and October, 1949, demonstrate little of note in the bony thorax, lung fields, or mediastinum for the age of 64 and do not reveal any sign of pneumonia, pulmonary lesion, or other obvious pathological process. Further films in this series taken in March of 1950, demonstrate a little fluid along the right lateral chest wall and haziness of the border of the right leaf of the diaphragm. It is possible on this film that the hilar nodes may be slightly enlarged but if so they are very small. Between March of 1950 and September of 1950, a considerable change has taken place in the chest, a change chiefly manifested by peribronchial density having a fibrous character, extending out from both hila into both upper lobes and to a much lesser extent into the lower lobes. Associated with this fibrous reaction and almost peribronchial pneumonic infiltration are no cavities, no unilateral atelectasis or

emphysema and no fluid. In October of 1950, further films demonstrate a little recession in the process, the peribronchial fibrosis being less in extent than before. The hilar nodes, however, still seem a little enlarged. The heart has gradually increased in size and the increase seems to be shared by all the chambers.

Tuberculosis and mycotic disease are possibilities and should be considered secondarily only to Boeck's sarcoid. I do not think the patient has periarteritis nodosa. The recession in the process from September to October would apparently militate against lymphangitic neoplasm.

The final roentgen diagnosis is Boeck's sarcoid.

DISCUSSION

Dr. Wadsworth: Dr. Manter, will you comment on the electrocardiograms?

Dr. Manter: The electrocardiograph findings can be briefly summed up by saying that this patient had extensive myocardial and coronary artery disease.

Dr. Wadsworth: Can anyone tell us about the terminal episode?

Dr. Drew: We tried everything we knew of to relieve this patient's labored breathing. He lay in bed and groaned. He expired quietly with no terminal increase in severity of dyspnea. His breathing was no different than it had been in the previous days.

Dr. Whitney: I would like to ask about the character and quality of peripheral arterial pulsations.

Dr. Drew: The pulse in the wrists and femoral pulsations were of good quality. The pulse was not palpable in the right foot.

Dr. Whitney: Was the patient given ACTH or cortisone?

Dr. Drew: No.

Dr. Manter: Was the possibility of Buerger's Disease considered?

Dr. Kellogg: The patient was a 64-year old Russian, whose leg was amputated at the age of 61. There was a history of excessive cigarette smoking. I feel he was too old for Buerger's Disease and that his arterial problem was one of arteriosclerosis.

Dr. Smith: Would Boeck's sarcoid involving the heart produce the changes noted in the electrocardiogram?

Dr. Drew: A visiting physician suggested a trial of digitalis. This was given in digitalizing dosage and resulted in no change in his dyspnea. It is unlikely that the heart might be involved by Boeck's sarcoid.

Clinical Diagnosis:

1. Boeck's sarcoid involving lungs and tracheobronchial lymph nodes.

2. Arteriosclerotic cardiovascular disease with enlarged heart, coronary sclerosis, myocardial fibrosis, old and probably recent coronary occlusion with myocardial infarction.

PATHOLOGIC FINDINGS

At autopsy there were palpable lymph nodes in each axilla and in each groin. These were small and moderately firm. There were two liters of clear yellow fluid in the peritoneal cavity. The liver extended 5 cms. below the right costal margin. The right pleural cavity was completely obliterated by dense fibrous adhesions. The left pleural cavity contained 500 c.c. of slightly blood-tinged clear fluid. The pericardial sac contained 160 c.c. of somewhat turbid yellowish fluid.

The heart is moderately enlarged, weighing 505 gms. The pericardial surfaces are smooth and glistening. The general configuration is not remarkable. The left ventricle is moderately firm and measures 1.3 cms. in the thickness except near the apex where it measures only 0.6 cms. in thickness. There are scattered grayish streaks in the myocardium. There is slight calcification of the aortic leaflets. There is moderate sclerosis of all of the coronary arteries without gross evidence of occlusion in any major vessel.

The left lung weighs 487 gms. There are scattered fibrous adhesions on the pleural surfaces. The hilar lymph nodes on the left are only moderately enlarged. There is a focal area of thickened pleura at the left apex. Sections through the left upper lobe reveal numerous thickened bronchioles without demonstrable plugs. The parenchymal tissue is moderately crepitant. The cut surface of the lower lobe is moist, pinkish gray and crepitant.

The right lung weighs 747 gms. The pleural surfaces are covered by dense, fibrous, opaque, yellowish gray adhesions. The lymph nodes at the hilus are considerably enlarged, some of them measuring 5.0 cms. in greatest diameter. Sections through the lung reveal a moist pinkish gray crepitant surface. Many of the bronchi are somewhat thickened and contain blood-tinged mucus.

The spleen is large weighing 347 gms. There is a uniform, moderately firm red surface.

Numerous enlarged lymph nodes are found throughout the mesentery.

There are scattered areas in the jejunum and ileum where the wall is somewhat thickened.

The other organs show no remarkable gross changes.

Some of the microscopic findings are of considerable interest. Sections of the left ventricle reveal numerous perivascular granulomatous foci characterized by collections of lymphocytes, epithelioid cells and multinucleated giant cells. There is no demon-

strable necrosis in these granulomatous lesions. Similar but less numerous lesions are also found in the right ventricle. There are, in the left ventricle, other small scattered areas of myocardial fibrosis which are apparently unassociated with the granulomatous lesions. The major coronary vessels reveal moderate intimal thickening and fragmentation of the internal elastic lamina. No coronary occlusion can be demonstrated.

The lymph nodes at the pulmonary hila are almost completely replaced by confluent foci of epithelioid cells and multinucleated giant cells. No areas of caseation necrosis are seen. No acid fast organisms are demonstrated with carbolfuchsin stains. The histology is quite characteristic of the lesions of Boeck's sarcoid.

Throughout both lungs there are small, scattered, granulomatous lesions similar in appearance to those found in the lymph nodes. Such lesions are also found in the thickened pleura of the left lung. There is evidence of hypertrophy of the muscular walls of the small branches of the pulmonary arteries. Some of the bronchioles are thickened and contain mucus, polys, and phagocytes.

Characteristic granulomatous lesions are also demonstrated in the spleen, axillary lymph nodes and mesenteric lymph nodes. An occasional similar lesion is found in the liver.

The kidneys show a moderate arteriosclerotic nephrosclerosis.

The bone marrow is not remarkable.

Final Diagnosis:

Boeck's sarcoid involving hilar, axillary, mesenteric, and inguinal lymph nodes, lungs, spleen, liver and myocardium.

Generalized arteriosclerosis with moderate coronary sclerosis and arteriosclerotic nephrosclerosis.

Chronic bronchitis, bronchiolitis and pulmonary arteriosclerosis.

Discussion:

Although the myocardium is only very rarely involved by the granulomatous lesions of tuberculosis, involvement of the myocardium is observed in about 20% of the autopsied cases of sarcoidosis.¹ Schaumann, in an early publication,² described involvement of the myocardium in post-mortem material. He described cases of myocardial failure ascribed to dilatation of the right side of the heart. Longcope³ reported 31 cases of sarcoidosis in five of which there was some evidence of myocardial damage during life. Three of these died and autopsy was performed on two of them. In both of these, more or

EDITORIALS

To Bring You Up To Date

With this issue of the JOURNAL we wind up another year of publication, which seems a fitting time to bring to your attention the following items:

PROCEEDINGS OF THE HOUSE OF DELEGATES

If you have missed the proceedings of the House of Delegates in the JOURNAL it is because the Council has agreed not to publish them. Primarily this is because of the cost of publication. Secondly, the stenographic report is on file in the Maine Medical Association office and is available to all members. These proceedings include the following reports for 1950-1951: Council Report by Dr. Eugene H. Drake; Report of Executive Secretary, W. Mayo Payson; Report of Councilor for the Fourth District, Dr. Raymond L. Torrey; Committee on Maternal and Child Welfare by Dr. Thomas A. Foster; Committee on Civil Defense by Dr. Charles W. Steele; Committee on Training of Nursing Attendants by Dr. Clyde I. Swett; Committee on Blood Transfusions relative to Red Cross Blood Banks by Dr. Richard C. Wadsworth; Cancer Committee by Dr. Forrest B. Ames; Report of your delegate to the American Medical Association, Dr. Martyn A. Vickers, and reports of delegates to the New England Medical Societies.

1952 ANNUAL SESSION *

The 1952 Annual Session will be held at The Samoset Hotel in Rockland on June 22, 23 and 24. In November we published the first of a series of "Progress Reports" by Dr. Loring W. Pratt, Chairman of the Scientific Committee. Don't miss these reports in future issues and don't fail to mark the dates in your 1952 desk calendar. What better "Memo" for a first! What better New Year's Resolution than making the 1952 annual session a "Must!"

PRESIDENTIAL NOTATIONS

Have you noticed the Presidential Notations in several issues of the JOURNAL? In these brief and concise notations, Dr. Jameson has covered matters of interest to you all, including the American Medical Education Foundation. If you have missed these, why not look up your back copies and read what he has to say. The annual index in the back of this issue will tell you where to look.

FINANCE COMMITTEE

In accordance with a vote of a Council of the Maine Medical Association in session October 28, your President, Dr. C. Harold Jameson, has appointed a Finance Committee, which consists of the following members:

Warren E. Kershner, M. D., Bath, Chairman
Elton R. Blaisdell, M. D., Portland
Emerson H. Drake, M. D., Portland

THE JOURNAL

In October the Council elected your President-elect, Dr. Eugene H. Drake, Editor of the JOURNAL. Dr. Drake, who had been acting as Editorial Advisor since June, accepted this appointment for the balance of the Association's fiscal year without salary. This job of Editor isn't a small one. It not only entails a goodly amount of time to read and correct all the scientific articles submitted for publication but the responsibility of selecting those most suitable for publication.

We have been doing our best to follow the wishes expressed by the House of Delegates and Council in June, relative to the JOURNAL and are happy to report that the cost of publication has been cut considerably and that advertising has shown a slight increase. In doing this we have learned a great many things about the printing business. As a matter of fact it has been suggested that your Acting Business Manager move down to the printers; this because of the time spent there in an effort to find all possible ways of cutting costs and at the same time maintaining a publication that you can be proud of. We hope to have a really favorable report for you at the 1952 annual session. In the meantime if you have any suggestions please send them to us. We are open to criticism, constructive or otherwise.

In connection with the JOURNAL, your Executive Secretary and Acting Business Manager attended the State Medical Journal Conference at A. M. A. headquarters in Chicago on November 12 and 13. We wish that space permitted us to list here the names of all the speakers and abstracts of the various discussions, which not only covered all phases of Journalism but were extremely interesting and instructive.

1952 County, State and National Dues

This is just a reminder that, come January 1st, annual dues are due again!

Your State and County dues are payable to your County Secretary.

Your check for American Medical Association dues should be sent to the Maine Medical Association, 142 High Street, Portland 3, Maine.

DOCTOR-PATIENT UNDERSTANDING

A member of the Public Relations Committee wrote to the Chairman recently protesting the use of the term "Public Relations" as applied to medical affairs. He said that to him it smacks of "commercialism." I think he's right; it sounds like a program which ordinarily reaches its high and low points in cheesecake art and baby kissing.

The same doctor constructively suggests a substitute term "Doctor-Patient Understanding." This isn't a slick, catchy expression but it does say explicitly what we mean when we talk about some phases of so-called Public Relations.

One of the chief causes of trouble that arises between doctors and their patients is over doctors' bills, and those differences almost always happen because of misunderstanding. If the doctor will talk with the patient about costs; if he will tell about tests that he will have made; if he will itemize bills, a big segment of Doctor-Patient Understanding will be filled in and a lot of trouble will be eliminated. Stopping

misunderstandings before they happen is worth a dozen committees to straighten them out afterward.

I know that dissatisfaction with doctors' charges is the unusual exception and in the vast majority of cases people are at least as happy about paying doctors' bills as they are about paying any bills.

AMA thinks that a high percentage of those cases of misunderstanding can be eliminated by a few minutes devoted to Doctor-Patient Understanding. As a practical aid to that end they have prepared a plaque which can be put on a desk or on the wall in the doctor's office. It is a permanent invitation to patients to discuss services and fees with the doctor.

AMA is sending us some stamped, self-addressed envelopes and if you'll put a dollar in one and write your name and address on the flap they'll send you a plaque.

I'm not trying to sell plaques for AMA but I'm an eager beaver when it comes to selling the message on the plaque for better Doctor-Patient Understanding.

The plaque reads:

TO ALL MY PATIENTS

I invite you to discuss frankly with me any questions regarding my services or my fees.

The best medical service is based on a friendly, mutual understanding between doctor and patient.

Clinico-Pathological Exercise—Continued from page 371

less extensive invasion of the myocardium by sarcoid was observed. In a sixth patient, scattered nodules were observed in the myocardium at autopsy, although during life there had been no symptoms or signs to suggest disease of the heart. It is of some interest that all five patients in whom forms of heart disease and myocardial failure were observed during life had enlargement of the heart. One patient who appeared to be in good general health died suddenly. Cotter⁴ recorded a fatal case of sarcoid in a negro, aged 18, in whom symptoms of myocardial failure dominated the clinical picture and in whom at autopsy extensive infiltration of the myocardium was noted.

First⁵ has pointed out that many cases of sarcoidosis show electrocardiographic changes of left

ventricular hypertrophy. He contrasts these changes with those seen in patients with far-advanced pulmonary tuberculosis.

It seems quite likely that the patient described in the above exercise died because of his myocardial involvement by sarcoid lesions. He appeared to be getting along fairly well and was about to be transferred to a convalescent home when he suddenly expired.

REFERENCES

1. Freiman, David G.: *New England J. Medicine*, 239:664, 1948.
2. Schaumann, J.: *Brit. J. Dermat.*, 48:399, 1936.
3. Longcope, W. T.: *J. A. M. A.*, 117:1321, 1941.
4. Cotter, E. F.: *Arch. Int. Med.*, 64:286, 1939.
5. First, S. R.: *Am. J. Medicine*, 7:760, 1949.

COUNTY SOCIETIES

Androscoggin

President, Merrill S. F. Greene, M. D., Lewiston
Secretary, Ralph A. Goodwin, Jr., M. D., Auburn

Aroostook

President, Bernard H. Gagnon, M. D., Houlton
Secretary, Clyde I. Swett, M. D., Island Falls

Cumberland

President, Theodore M. Stevens, M. D., Portland
Secretary, Ralf S. Martin, M. D., Portland

Franklin

President, Philip B. Chase, M. D., Farmington
Secretary, Paul E. Floyd, M. D., Farmington

Hancock

President, W. Edward Thegan, M. D., Bucksport
Secretary, Joseph H. Hanson, M. D., Bar Harbor

Kennebec

President, Edwin W. Harlow, M. D., Waterville
Secretary, Arch H. Morrell, M. D., Augusta

Knox

President, Harry G. Tounge, M. D., Camden
Secretary, Robert L. Allen, M. D., Rockport

Lincoln-Sagadahoc

President, Arthur A. Nichols, M. D., Wiscasset
Secretary, M. W. Westermeyer, M. D., Bath

Oxford

President, Edward L. Reeves, M. D., Lewiston
Secretary, Dexter E. Elmore, M. D., Dixfield

Penobscot

President, Wesley C. McNamara, M. D., Lincoln
Secretary, Herbert C. Scribner, M. D., Bangor

Piscataquis

President, Linus J. Stitham, M. D., Dover-Foxcroft
Secretary, George C. Howard, M. D., Guilford

Somerset

President, Harland G. Turner, M. D., Norridgewock
Secretary, H. Carl Amrein, M. D., Madison

Waldo

President, Abraham O. Stein, M. D., Belfast
Secretary, Raymond L. Torrey, M. D., Searsport

Washington

President, DaCosta F. Bennett, M. D., Lubec
Secretary, Karl V. Larson, M. D., East Machias

York

President, Melvin Bacon, M. D., Sanford
Secretary, C. W. Kinghorn, M. D., Kittery

COUNTY SOCIETY NOTES

Aroostook

At the fall meeting of the Aroostook County Medical Society, October 24, the following members were elected to serve as delegates to the Maine Medical Association in 1952: Bernard H. Gagnon, M. D., and P. L. B. Ebbett, M. D., both of Houlton. Alternates are: Clyde I. Swett, M. D., of Island Falls, and Clement L. Donahue, M. D., of Caribou.

Hancock

A meeting of the Hancock County Medical Society was held at the Hancock House, Ellsworth, Maine, on November 14, 1951.

Carl W. Irwin, M. D., of Bangor, gave a formal talk on *The Diagnosis and Treatment of Back Injuries*, which was followed by a very interesting general discussion of various questions related to back and head injuries. This discussion gave the members of the society an opportunity to clarify many questions related to these types of injuries.

JOSEPH H. HANSON, M. D.,
Secretary.

Penobscot

The annual meeting of the Penobscot County Medical Association was held at the Bangor House, Bangor, Maine, on Tuesday, November 20, 1951.

Harry D. McNeil, M. D., retiring President, presided.

The following officers were elected for the coming year:

President, Wesley C. McNamara, M. D., Lincoln.

Vice President, Harry Butler, M. D., Bangor.

Secretary-Treasurer, Herbert C. Scribner, M. D., Bangor.

Board of Censors (for three years): Lloyd Brown, M. D., Bangor.

Delegates to the Maine Medical Association (for three years): Clarence Emery, M. D., Bangor, and Lyman O. Warren, M. D., Brewer.

Duncan Reid, M. D., Chief of Obstetrics, Boston Lying-in Hospital, Boston, spoke on *Some Controversial Subjects in Obstetric Practice*.

There were fifty members present.

HERBERT C. SCRIBNER, M. D.,
Secretary.

Kennebec

The regular meeting of the Kennebec County Medical Association, held at the Elmwood Hotel, Waterville, Maine, on October 18, 1951, began at 7.00 P. M. with dinner served to thirty; there were several late arrivals.

President Edwin W. Harlow opened the business session. The record of the last meeting was approved.

Roscoe L. Mitchell, M. D., Chairman of the Committee on Resolutions on the death of Frederick R. Carter, M. D., read the following:

Continued on page 376

For Simplified Dosage in Amebiasis

NEW

Diodoquin Tablets of

10 GRAINS

(650 mg.)



With the introduction of a new 10-grain (650 mg.) tablet of Diodoquin, the number of tablets necessary for treatment of amebiasis can be reduced from ten a day to three a day.

Thus the twenty-day recommended dosage schedule is accomplished with a total of 60 instead of 200 tablets. The cost to the patient is reduced accordingly.



A potent oral amebacide—

DIODOQUIN®
(diiodohydroxyquinoline)

—is a well-tolerated, relatively nontoxic compound containing 63.9 per cent of iodine.

Now available in tablets of:

3.2 grains (210 mg.), bottles of 100 and 1,000
10 grains (650 mg.), bottles of 60 and 500

Be sure to prescribe the 10 gr. (650 mg.) size for full adult dosage.

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

County Society Notes—Continued from page 374

Announcement of the death of Frederick R. Carter, M. D., on August 19, 1951, though not entirely unexpected, came as a shock to his many friends and long-time associates in the Kennebec County Medical Association.

Dr. Carter, a native of Troy, Maine, began his medical career after graduation from the University of Vermont College of Medicine in 1915, and a short internship in a New York Hospital. Always interested in the mentally ill, he came to the Augusta State Hospital late the same year. In 1918, he was chosen Assistant Superintendent of that institution and held that position until his retirement in 1942.

The esteem and confidence in which Dr. Carter was held by his fellow members is evidenced by his election; one time as President and later as Secretary-Treasurer of this Association for seventeen consecutive years.

For his devotion to duty and ability in his chosen field he was recognized throughout this State and nationally as well. He will long be remembered as the efficient Secretary-Treasurer of the Maine Medical Association from 1937, and Editor and Business Manager of the MAINE MEDICAL JOURNAL from 1941 to his resignation in 1951. He was President of the Maine Psychiatric Association and actively associated with national groups in that specialty.

He was naturally reserved and modest, nevertheless, active in many community and fraternal organizations.

WHEREAS in the passing of Dr. Carter, the members of the Association will no longer have the privilege of meeting him at our gatherings to profit by his helpful counsel, or enjoy his friendly greetings; and be it

RESOLVED, That in his passing we have lost not only an outstanding member of the profession and of this Association, but a high minded gentleman who was a distinct asset to the communities in which he lived.

Your committee recommends that this resolution be spread on the records of the Association; copies be sent to members of the bereaved family and a copy to the Maine Medical Association.

Respectfully submitted,

R. L. MITCHELL,

R. L. McKAY,

H. E. SMALL.

It was voted that the above be accepted and the Committee's instructions carried out.

President Harlow appointed Dr. Napoleon Bisson, Chairman, and Drs. F. T. Hill and L. Armand Guite as the committee on Resolutions on the death of William L. Gousse, M. D., and Dr. E. H. Jackson, Chairman, and Drs. Roland L. McKay and William J. O'Connor on the death of George A. Coombs, M. D.

Five applications for membership were received and referred to the Council.

President Harlow then introduced Dr. John O. Piper, who acted as Moderator of a very interesting Round Table Discussion on Diabetes, with the following participants: John F. Reynolds, M. D., Surgery; Valentine J. Moore, M. D., Anaesthesia; George J. Robertson, M. D., and Frederick B. Champin, M. D., Internists; Kenneth W. Sewall, M. D., Obstetrics; Irving I. Goodof, M. D., Laboratory; Edmund N. Ervin, M. D., Pediatrics; and Richard H. Dennis, M. D., Ophthalmology.

A series of thirty odd questions formed the nucleus of the discussion, covering all phases; definition, heredity, treatment in children and in adults; the pathology, materials available for treatment; arteriosclerosis and diabetes; effect of diabetes on pregnancy; anaesthesia in diabetes; complications of surgery and other phases of the problem. It was a very informative and well done discussion for which the Association is indebted to this group.

A. H. MORRELL, M. D.,
Secretary.

Washington

A regular meeting of the Washington County Medical Society was held on November 29, 1951, at the Congregational Vestry, East Machias, Maine, with twenty-seven members and guests present. After an excellent dinner served by the Ladies' Union Society, Dr. Herbert S. Everett of St. Stephen, N. B., President of the Washington County Society, introduced Dr. C. Harold Jameson of Camden, President of the Maine Medical Association. Dr. Jameson talked on various problems confronting the Maine Medical Association especially as to the advisability of a grievance committee and of a code of ethics.

Dr. Everett then introduced Dr. Donald F. MacDonald of Bangor, attending obstetrician of the Eastern Maine General Hospital. Dr. MacDonald spoke on various topics in obstetrics, especially on the use of Fibrinogen in cases when blood will not clot. At present the Fibrinogen is very expensive. He also spoke on the use of I.V. pitocin in solution to induce labor. He also covered other aspects of obstetrics which were of great interest to the members and brought forth considerable discussion.

Dr. Everett then introduced Dr. Benjamin F. Shapero of Bangor, a member of the Pediatric staff of the Eastern Maine General Hospital. Dr. Shapero spoke on care of the premature infant. He covered the present status of immunization and the present therapy of the communicable diseases. He stated that in certain diseases it was necessary to use a combination of two and sometimes three antibiotics because of the different bacteria represented.

Dr. Everett introduced Dr. Joseph B. Kiel of Columbia Falls, Maine, a new member of the society. Present as guests were members of the Ladies' Auxiliary of the Washington County Medical Society, and Dr. Paul A. Millington of Camden.

The following officers were elected for the coming year:

President, DaCosta F. Bennett, M. D., Lubec.

Vice President, E. B. Johnston, M. D., St. Stephen, N. B.

Secretary-Treasurer, Karl V. Larson, M. D., East Machias, Maine.

Board of Censors (for three years): H. John Young, M. D., Jonesport, Maine.

Delegate to Maine Medical Association: Oscar F. Larson, M. D., Machias. Alternates: Robert G. MacBride, M. D., Lubec; James C. Bates, M. D., Eastport.

It was voted to hold the next meeting in St. Stephen, N. B., in January.

KARL V. LARSON, M. D.,
Secretary.

New Members

Cumberland

Harry A. Bliss, M. D., 58 Deering St., Portland, Maine.

Edward W. Colby, M. D., 389 Congress St., Portland, Maine.

Joseph B. Earnhardt, M. D., 55 Stroudwater St., Westbrook, Maine.

Charles P. Lape, M. D., 49 Deering St., Portland, Maine.

Gerald C. Leary, M. D., 144 State St., Portland, Maine.

Burton L. Olmsted, M. D., 73 Deering St., Portland, Maine.

Sidney J. Peck, M. D., 43 Deering St., Portland, Maine.

Washington

Joseph B. Kiel, M. D., Columbia Falls, Maine.

NEWS AND NOTES

Department of Health and Welfare Division of Maternal and Child Health (Including Services for Crippled Children)

Clinic Schedule—1951

ORTHOPEDIC CLINICS

Portland — Maine General Hospital, 9.00-11.00 a. m.: Jan. 8, Feb. 12, Mar. 12, April 9, May 14, June 11, July 9, Aug. 13, Sept. 10, Oct. 8, Nov. 5, Dec. 10.

Lewiston — Central Maine General Hospital, 9.00-11.00 a. m.: Jan. 19, Feb. 16, Mar. 16, April 20, May 18, June 15, July 20, Aug. 17, Sept. 21, Oct. 19, Nov. 16, Dec. 21.

Rumford — Community Hospital, 1.30-3.00 p. m.: Mar. 14, June 20, Sept. 19, Dec. 19.

Waterville — Thayer Hospital, 1.30-3.00 p. m.: Feb. 15, April 26, June 28, Aug. 23, Oct. 25, Dec. 27.

Machias — Normal School, 1.30-3.00 p. m.: Feb. 14, Apr. 11, June 13, Aug. 8, Oct. 10, Dec. 12.

CARDIAC CLINICS

Portland — Maine General Hospital, 9.00-12.00 a. m.: Will be held every Friday with the exception of holidays.

Bangor — Eastern Maine General Hospital, 9.00-11.00 a. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

HARD-OF-HEARING CLINICS

Waterville — Thayer Hospital, 1.30-3.30 p. m.: Feb. 21, June 6, Sept. 5, Dec. 5.

PEDIATRIC CLINICS

Bangor — Eastern Maine General Hospital, 1.30 p. m.: Jan. 26, Feb. 23, Mar. 30, Apr. 27, May 25, June 22, July 27, Aug. 24, Sept. 28, Oct. 26, Nov. 30, Dec. 28.

Waterville — Thayer Hospital, 1.30 p. m.: Jan. 2, Feb. 6, Mar. 6, April 3, May 1, June 5, July 3, Aug. 7, Sept. 4, Oct. 2, Nov. 6, Dec. 4.

By appointment only.

Mental Health Clinic Schedule

The Division of Mental Health offers psychiatric clinic service to children and adults in the following cities:

Portland — Health and Welfare Department, 178 Middle Street. Every Tuesday.

Lewiston — Out-Patient Department, Central Maine General Hospital. Every Monday.

Augusta — Bureau of Health, Division of Mental Health. By Appointment.

Waterville — Out-Patient Department, Thayer Hospital. 2nd Thursday, 4th Wednesday.

Bangor — Out-Patient Department, Eastern Maine General Hospital. 1st Wednesday afternoon.

Valentine School, Union Street. 1st Thursday.

A traveling clinic visits the following towns and cities at irregular intervals: Brunswick, Caribou, Farmington, Fort Kent, Houlton, Lincoln, Machias, Old Town, Presque Isle, Rockland, Rumford and South Paris. All clinics are staffed by a psychiatrist and psychologist.

Referrals may be made by private physicians, parents, families, social agencies, school superintendents, Department of Education, all divisions within the Department of Health and Welfare. Application blanks may be obtained from the main office of the Division of Mental Health — State House, Augusta.

Patients are seen by appointment only. Each child must be accompanied by a parent or guardian. Applications should be sent to the Director, Division of Mental Health, Department of Health and Welfare, State House, Augusta, where all appointments are made.

Tumor Clinics

Sisters Hospital, Waterville, Maine, 1st and 3rd Thursdays, 10.00-11.00 A. M., Armand L. Guite, M. D., Director.

Augusta General Hospital, Augusta, Maine, 1st Monday, 9.00 A. M., Leon D. Herring, M. D., Director.

Bath Memorial Hospital, Bath, Maine, 2nd Tuesday, 3.00-5.00 P. M., Francis A. Winchenbach, M. D., Director.

Maine General Hospital, Portland, Maine, Thursdays, 10.00 A. M., Joseph E. Porter, M. D., Director.

Presque Isle General Hospital, Presque Isle, Maine, Thursdays, 10.00-12.00 A. M., Storer W. Boone, M. D., Director.

Madigan Memorial Hospital, Houlton, Maine, 2nd and 4th

Wednesdays, 10.00-12.00 A. M., Joseph A. Donovan, M. D., Director.

Central Maine General Hospital, Lewiston, Maine, Tuesdays, 10.00 A. M., Waldo A. Clapp, M. D., Director.

St. Mary's General Hospital, Lewiston, Maine, Wednesdays, 3.30 P. M., Romeo A. Beliveau, M. D., Director.

Eastern Maine General Hospital, Bangor, Maine, Thursdays, 10.30 A. M., Magnus F. Ridlon, M. D., Director.

Thayer Hospital, Waterville, Maine, Tuesdays, 10.00-11.00 A. M., Irving I. Goodof, M. D., Director.

Venereal Disease Clinics

The Department of Health and Welfare, Bureau of Health, maintains facilities for the diagnosis and treatment of venereal diseases in the following locations:

Augusta, Bangor, Bath, Belfast, Biddeford,
Lewiston, Portland, Rockland, Rumford,
Sanford, Waterville, Wilton and Winthrop.

Any physician wishing to refer an indigent person for diagnosis or treatment may obtain the name of the nearest clinic physician by contacting the Department of Health and Welfare, Bureau of Health, State House, Augusta, Maine. If no clinic facilities are available, physicians will be authorized to treat indigent patients in their offices. Authorization should be requested before treatment is started.

HOSPITAL STAFF MEETINGS

Open to the Profession

CITY	HOSPITAL	DATE
Augusta	Augusta General Hospital	1st Wednesday
Bangor	Eastern Maine General	2nd Tuesday
Bath	Bath Memorial Hospital	1st Tuesday
Belfast	Waldo County	2nd Friday
Biddeford	Webber Hospital	2nd Thursday
	Notre Dame Hospital	2nd Monday
Boothbay Harbor	St. Andrew's Hospital	4th Tuesday
Caribou	Cary Memorial	1st Wednesday
Damariscotta	Miles Memorial	2nd Thursday
Farmington	Franklin County Memorial	2nd Monday
Greenville	Charles Dean Hospital	2nd Wednesday
Hartland	Scott Webb Memorial Hospital	1st Wednesday
Lewiston	Central Maine General	2nd Thursday
	St. Mary's General	2nd Monday
Portland	Maine Eye and Ear Infirmary	1st Tuesday
	Maine General	2nd Friday
	Mercy	3rd Thursday
Presque Isle	Presque Isle General	1st and 3rd Tuesdays
Rockland	Knox County General	1st Monday
Rumford	Rumford Community	4th Wednesday
Sanford	Goodall Memorial	2nd Monday
Waterville	Sisters	2nd Tuesday
	Thayer	Every Thursday

The above list was compiled from a questionnaire sent out by the Maine Hospital Association. Additions or corrections will be made on notification to the Secretary, Maine Hospital Association, Thayer Hospital, Waterville.

Index

VOLUME FORTY-TWO

THE JOURNAL
of the
MAINE MEDICAL ASSOCIATION



EUGENE H. DRAKE, M. D., Portland, Editor

EDITORIAL BOARD

Maine Medical Association

First District,
Second District,
Third District,
Fourth District,
Fifth District,
Sixth District,

EUGENE E. O'DONNELL, M. D., Chairman,
WALDO A. CLAPP, M. D.,
RALPH P. EARLE, M. D.,
ARCH H. MORRELL, M. D.,
JAMES H. CROWE, M. D.,
RICHARD C. WADSWORTH, M. D.,

Portland
Lewiston
Vinalhaven
Augusta
Ellsworth
Bangor

Maine Hospital Association

FREDERICK T. HILL, M. D., Waterville

PEARL R. FISHER, R. N., Waterville

Officers of the Maine Medical Association

1951-1952

OFFICERS

President, C. HAROLD JAMESON, M. D., Rockland *Executive Secretary*, W. MAYO PAYSON, Portland

President-elect, EUGENE H. DRAKE, M. D., Portland *Acting Secretary-Treasurer*, ESTHER M. KENNARD, Portland

COUNCILORS AND DISTRICTS

First District,	Cumberland, York	WILLIAM F. MAHANEY, M. D., Saco,	1954
Second District,	Androscoggin, Franklin, Oxford	CURRIER C. WEYMOUTH, M. D., Farmington,	1954
Third District,	Knox, Lincoln, Sagadahoc	ROBERT W. BELKNAP, M. D., Damariscotta,	1953
Fourth District,	Kennebec, Somerset, Waldo	RAYMOND L. TORREY, M. D., Searsport,	1953
Fifth District,	Hancock, Washington	RAYMOND E. WEYMOUTH, M. D., Bar Harbor,	1952
Sixth District,	Aroostook, Penobscot, Piscataquis	NORMAN H. NICKERSON, M. D., Greenville,	1952

Delegate to American Medical Association—MARTYN A. VICKERS, M. D., Bangor

Immediate Past President—FOSTER C. SMALL, M. D., Belfast

Council Chairman—NORMAN H. NICKERSON, M. D.

CHAIRMEN OF STANDING COMMITTEES

Scientific

LORING W. PRATT, M. D., Waterville

Medical Education and Hospitals

WALDO A. CLAPP, M. D., Lewiston

Medical Advisory

ALLAN WOODCOCK, M. D., Bangor

Legislative

P. L. B. EBBETT, M. D., Houlton

Public Relations

FREDERICK T. HILL, M. D., Waterville

Rural Health

NORMAN H. NICKERSON, M. D., Greenville

INDEX

Volume Forty-two

Guide

January	Number One	Pages 1- 36	July	Number Seven	Pages 213-248
February	Number Two	Pages 37- 66	August	Number Eight	Pages 249-278
March	Number Three	Pages 67-112	September	Number Nine	Pages 279-299
April	Number Four	Pages 113-132	October	Number Ten	Pages 301-326
May	Number Five	Pages 133-164	November	Number Eleven	Pages 327-354
June	Number Six	Pages 165-212	December	Number Twelve	Pages 355-384

Articles — Civil Defense Reports — Clinico-Pathological Exercises

A	Page		Page
ACTH and Cortisone, Clinical Use of (Robertson, George J.)	53	Esophagus, Idiopathic Dilatation of (Fox, S. Frank)	120
ACTH and Cortisone in Ophthalmology (Hill, Howard F., Dennis, Richard H., and Shannon, Charles E. G.)	47	Eyeground Changes of Particular Importance to the General Practitioner (Maier, Paul)	266
ACTH and Cortisone Therapy, The Laboratory in (Goodof, Irving I.)	49	F	
ACTH and the General Practitioner (Brown, Ethan Allan)	75	Fluid and Electrolyte Balance, Laboratory Considerations in (Goodof, Irving I.)	301
ACTH and Cortisone in Treatment of Weber-Christian Disease (Drew, Donald W., Wasson, Anne A., and Morris, Lloyd E., Jr.)	357	Fluid and Electrolyte Balance, Medical Aspects of (Mantter, W. B.)	302
Alkalosis, Hypokalemic (Asali, Louis A.)	304	Fluid and Electrolyte Balance, Problems in Everyday Hospital Practice (Barton, William K., and Ohler, Robert L.)	342
Amebic Abscess of Caecum, Chloroquine in Treatment of Acute (Tobias, G. James, and Anderson, Bernard G.)	367	Fluid and Electrolyte Balance, Surgical Problems of (Lape, C. P.)	307
Aneurysm of Left Cardiac Ventricle (Holt, C. Lawrence)	117	Fractures of the Femoral Neck in Childhood (Livingstone, Robert G.)	86
Artificial Feeding of Infants, Notes on (Dash, George E.)	1	G	
B		Gastric Lesions, Differential Diagnosis from Cells Obtained by Stomach Aspiration (Porter, Joseph, Spencer, Jack, Blaisdell, Elton R., Appel, John F., and Herrick, Stanley E., Jr.)	67
Bacterial Nasal Allergy (Maletta, A. L.)	94	Gastrointestinal Bleeding Associated with Hiatus Hernia (Champlin, Frederic B., and Piper, John O.)	40
Basal Cell Carcinoma, Replacement of a Skin Graft by (Spaeth, Edmund B.)	6	Genito-Urinary Tract, Surgical Injuries of (Mummelaar, Joseph)	340
C		Getting Along with One's Self and Others (Benson, Charles E.)	10
Carcinoma, Endometrial, Management of (James, John A.)	327	H	
Carcinoma of the Endometrium and Fallopian Tube (Gregory, Philip O., and Goodof, Irving I.)	9	Head Injuries, Practical Points in Treatment of Acute (Maltby, George L.)	256
Carcinoma of the Cervix, Surgical Treatment of (Green, Ross W.)	329	Head Injury with Fracture of Skull and Facial Paralysis (Reynolds, John F., and Hill, Frederick T.)	39
Cerebral Thrombosis, Autochthonous (Dore, Clarence E., and Goodof, Irving I.)	57	Hemiplegia, Physical Medicine and Rehabilitation for Patients with (Burnham, L. R.)	173
Cervical Cancer, Intracavitary Application of Radium in the Treatment of (Miller, Clark F.)	331	Hemorrhagic Diseases, Common Methods in Diagnosis of (Ferguson, Franklin F.)	259
Chest Injuries (Brown, Lloyd)	337	Hemorrhagic Tendency of Aspirin Therapy (Schaeffer, John H., Blaisdell, Elton R., and Herrick, Stanley E., Jr.)	262
Chest Survey Program at Maine Medical Center, Analysis of (Spencer, Jack, and Schaeffer, John H.)	264	Hepatic Involvement by Metastatic Carcinoma with a Negative Cephalin-Cholesterol Flocculation Reaction (Wasserman, Edward)	137
Childhood Diseases, Emotional Factors in (Baty, James Marvin)	139	Hernias Repaired with Tantalum Mesh (Pomerleau, Rodolphe J. F.)	286
Chloroquine in Treatment of Acute Amebic Abscess of the Caecum (Tobias, G. James, and Anderson, Bernard G.)	367	Hospital Administration:	
Chlor-Trimeton, Clinical Experience with (Schiller, Irving W., Lowell, Francis C., and Franklin, William)	89	Answering Hospital Cost Criticisms (Rosenberger, Donald M.)	268
Civil Defense: What Every Maine Doctor Should Know About Civil Defense and Public Safety Planning (Committee on Civil Defense, Maine Medical Association—Steele, Charles W., Chairman)	13-148	Planning—A Must in Today's Hospital Nursing Service (Rosenberger, Donald M.)	96
Clinico-Pathological Exercises:		Point Rating System of the American College of Surgeons and the Hospital (Spangler, Huston K.)	97
Boeck's sarcoid (Eastern Maine General Hospital)	369	Staff Audit and Consultation Ratio (Hill, Frederick T.)	58
Intestinal Lipodystrophy (Maine General Hospital)	144	State Aid—A Continuing Problem (Barker, John C.)	270
College and the Medical School (Marriner, Ernest C.)	282	Hyperinsulinism (Mahaney, William F.)	113
D		Hypersplenism (Burrage, William C.)	124
Desmoid Tumors of Abdominal Wall (Foote, E. L., and Anderson, S. M.)	222	Hypokalemic Alkalosis (Asali, Louis A.)	304
Differential Diagnosis of Gastric Lesions from Cells Obtained by Stomach Aspiration (Porter, Joseph, Spencer, Jack, Blaisdell, Elton R., Appel, John F., and Herrick, Stanley E., Jr.)	67	I	
Diverticulitis with Acute Large Bowel Obstruction (Gregory, Philip O.)	3	Infectious Mononucleosis (Dana, J. B.)	213
Dizziness and Vertigo in Daily Practice (Pratt, Loring W.)	55	L	
E		Lobotomy Program at Veterans Administration Center, Togus, Maine (Zeltzman, Israel)	220
Eosinophilia in Allergic States, Response of (Spellman, Francis A.)	218	Ludwig's Angina with Complications (Poulin, James E.)	284

	Page		Page
M		S	
Maine State Police Bureau of Investigation (Freeman, Arthur)	142	Sigmoidovesical Fistula in a Male 39 Years of Age (McQuillan, Arthur H.)	37
Medical Care, Trends in (Wing, Frank E.)	99	Simmonds' Disease Following Irradiation of Pituitary Gland for Acromegaly (Warren, Lyman O.)	355
Medical Conference—Mercy Hospital: Infectious Mononucleosis (Holt, C. Lawrence)	126	Skin Graft to Hand, Full Thickness (Smith, E. J.)	290
Periarteritic Nodosa (Davidson, Gisela K.)	126	Speech and Lip Reading Clinic at Thayer Hospital (Koons, Elizabeth O.)	61
N		Staff Audit and Consultation Ratio (Hill, Frederick T.) ..	58
Newborn Child, Problems Encountered in the (Shapero, Benjamin L., Brown, Eugene E., Emery, Frederic C., and Fellows, Albert W.)	360	State Aid—A Continuing Problem (Barker, John C.)	270
O		Strabismus, Early Recognition of (Dennis, Richard H.) ..	50
Obstetric Helps (McCormick, C. O.)	309	Surgery in Pulmonary Tuberculosis, Place of (Brown, Lloyd)	133
Obstetrical and Gynecological Patients, Preoperative and Postoperative Disorders of Venous System in (Bramhall, Theodore C.)	334	Surgical Injuries of Genito-Urinary Tract (Mummelaar, Joseph)	340
Obstruction of Small Intestine, Acute (Spencer, Jack, and Thaxter, Langdon T.)	249	Surgical Treatment of Lesions of Lower Esophagus and Gastric Fundus (Drake, Emerson H.)	78
P		Surgical Use of Steel Wire (Chasse, R. L.)	289
Pancytopenia Following Anti-Histamine Administration, Fatal (Glassmire, Charles R.)	83	T	
Peptic Ulcer and the Pituitary Adrenal System (Turner, Fennel P.)	170	Tracheotomy, Fatal Hemorrhage Due to (Johnson, Albert C.)	261
Physical Medicine and Rehabilitation for Patients with Hemiplegia (Burnham, L. R.)	173	Treatment of Acne in the Female with a Hormone (Johnson, O. R.)	258
Planning—A Must in Today's Hospital Nursing Service (Rosenberger, Donald M.)	96	Torsion of Omentum, Acute, without Hernia (Pomerleau, Ovid F.)	292
Point Rating System of the American College of Surgeons and the Hospital (Spangler, Huston K.)	97	Trimeton Maleate Lotion with Prepared Neocalamine, Clinical Experience with (Vickers, Martyn A.)	347
Poliomyelitis, Respiratory Complications of—149 Cases (Curelop, Sidney, and Braun, Harold A.)	72	W	
Pregnenolone in Rheumatoid Arthritis, Use of (Bruce, J. Graham)	92	Weber-Christian Disease, ACTH and Cortisone in Treatment of (Drew, Donald W., Wasson, Anne A., and Morris, Lloyd E., Jr.)	357
President's Address (Small, Foster C.)	279	Authors	
Prostatectomy, Retro-Pubic (Greenlaw, W. A., and Guite, L. A.)	287	Anderson, Bernard G., Bangor, Maine	367
Pulmonary Tuberculosis, Surgery in (Brown, Lloyd)	133	Anderson, S. M., Togus, Maine	222
R		Appel, John F., Portland, Maine	67
Replacement of a Skin Graft by a Basal Cell Carcinoma (Spaeth, Edmund B.)	6	Asali, Louis A., Portland, Maine	304
Roentgenologic Aspects of Polyposis of the Gastrointestinal Tract (Lubell, Moses F.)	44	Barker, John C., Portland, Maine	270
Ruptured Gastric Ulcer (Southworth, John D.)	165	Barton, William K., Togus, Maine	342
S		Baty, James M., Boston, Massachusetts	139
Sigmoidovesical Fistula in a Male 39 Years of Age (McQuillan, Arthur H.)	37	Benson, Charles E., New York University, N. Y.	10
Simmonds' Disease Following Irradiation of Pituitary Gland for Acromegaly (Warren, Lyman O.)	355	Blaisdell, Elton R., Portland, Maine	67-262
Skin Graft to Hand, Full Thickness (Smith, E. J.)	290	Bramhall, Theodore C., Portland, Maine	334
Speech and Lip Reading Clinic at Thayer Hospital (Koons, Elizabeth O.)	61	Braun, Harold A., Bangor, Maine	72
Staff Audit and Consultation Ratio (Hill, Frederick T.) ..	58	Brown, Ethan Allan, Boston, Massachusetts	75
State Aid—A Continuing Problem (Barker, John C.)	270	Brown, Eugene E., Bangor, Maine	360
Strabismus, Early Recognition of (Dennis, Richard H.) ..	50	Brown, Lloyd, Bangor, Maine	133-337
Surgery in Pulmonary Tuberculosis, Place of (Brown, Lloyd)	133	Bruce, J. Graham, Springfield, Massachusetts	92
Surgical Injuries of Genito-Urinary Tract (Mummelaar, Joseph)	340	Burnham, L. R., Togus, Maine	173
Surgical Treatment of Lesions of Lower Esophagus and Gastric Fundus (Drake, Emerson H.)	78	Burrage, William C., Portland, Maine	124
Surgical Use of Steel Wire (Chasse, R. L.)	289	Champlin, Frederic B., Waterville, Maine	40
S		Chasse, R. L., Waterville, Maine	289
S		Curelop, Sidney, Bangor, Maine	72
S		Dana, J. B., Togus, Maine	213
S		Dash, George E., Boothbay Harbor, Maine	1
S		Davidson, Gisela K., Portland, Maine	126
S		Dennis, Richard H., Waterville, Maine	47-50
S		Dore, Clarence E., Waterville, Maine	57
S		Drew, Donald W., Bangor, Maine	357
S		Drake, Emerson H., Portland, Maine	78
S		Emery, Frederic C., Bangor, Maine	360
S		Fellows, Albert W., Bangor, Maine	360
S		Ferguson, Franklin F., Portland, Maine	259
S		Foote, E. L., Togus, Maine	222
S		Fox, S. Frank, Portland, Maine	120
S		Franklin, William, Boston, Massachusetts	89
S		Freeman, Arthur, Augusta, Maine	142
S		Glassmire, Charles R., Portland, Maine	83
S		Goodof, Irving I., Waterville, Maine	9-49-57-301
S		Gregory, Philip O., Boothbay Harbor, Maine	3-9
S		Green, Ross W., Auburn, Maine	329

	Page
Greenlaw, W. A., Waterville, Maine	287
Guite, L. A., Waterville, Maine	287
Herrick, Stanley E., Jr., Portland, Maine	67-262
Hill, Frederick T., Waterville, Maine	39-58
Hill, Howard F., Waterville, Maine	47
Holt, C. Lawrence, Portland, Maine	117-126
James, John A., Auburn, Maine	327
Johnson, Albert C., Portland, Maine	261
Johnson, O. R., Portland, Maine	258
Koons, Elizabeth O., Waterville, Maine	61
Lape, C. P., Portland, Maine	307
Livingstone, Robert G., Cambridge, Massachusetts	86
Loughlin, John F., Togus, Maine	225
Lowell, Francis C., Boston, Massachusetts	89
Lubell, Moses F., Waterville, Maine	44
Mahaney, William F., Saco, Maine	113
Maier, Paul, Portland, Maine	266
Maietta, A. L., Boston, Massachusetts	94
Maltby, George L., Portland, Maine	256
Manter, W. B., Bangor, Maine	302
Marriner, Ernest C., Waterville, Maine	282
Memmelaar, Joseph, Bangor, Maine	340
Miller, Clark F., Lewiston, Maine	331
McCormick, C. O., Indianapolis, Indiana	309
McQuillan, Arthur H., Waterville, Maine	37
Morris, Lloyd E., Jr., Bangor, Maine	357
Ohler, Robert L., Togus, Maine	342
Piper, John O., Waterville, Maine	40
Pomerleau, Ovid F., Waterville, Maine	292
Pomerleau, Rodolphe J. F., Waterville, Maine	286
Porter, Joseph, Portland, Maine	67
Poulin, James E., Waterville, Maine	284
Pratt, Loring W., Waterville, Maine	55
Reynolds, John F., Waterville, Maine	39
Robertson, George J., Waterville, Maine	53
Rosenberger, Donald M., Portland, Maine	96-268
Schaeffer, John H., Portland, Maine	262-264
Schiller, Irving W., Boston, Massachusetts	89
Shannon, Charles E. G., Waterville, Maine	47
Shapero, Benjamin L., Bangor, Maine	360
Small, Foster C., Belfast, Maine	279
Smith, E. J., Waterville, Maine	290
Southworth, John D., Togus, Maine	165
Spaeth, Edmund B., Philadelphia, Pa., and Boothbay Harbor, Maine	6
Spangler, Huston K., Worcester, Massachusetts	97
Spellman, Francis A., Togus, Maine	218
Spencer, Jack, Portland, Maine	67-249-264
Steele, Charles W., Lewiston, Maine	13-148
Thaxter, Langdon T., Portland, Maine	249
Tobias, G. James, Bangor, Maine	367
Turner, Fennell P., Togus, Maine	170
Vickers, Martyn A., Bangor	347
Warren, Lyman O., Bangor, Maine	355
Wasserman, Edward, Boston, Massachusetts	137

	Page
Wasson, Anne A., Bangor, Maine	357
Wing, Frank E., Boston, Massachusetts	99
Zeltzman, Israel, Togus, Maine	220

Editorials

Art-Hobby Exhibit (Annual Session)	102-176
Dr. Frederick R. Carter Resigns as Secretary-Treasurer-Editor	234
To Bring You Up To Date	372
Doctor-Patient Understanding	373
Fall Clinical Session	272-294-316
Interim Session, House of Delegates	102
Progress Notes on the 1952 Annual Meeting	348
State Aid to Hospitals	294
State and County Dues	102
The Business Side of the Annual Session	234
The 97th Annual Session (1951)	127-157

General

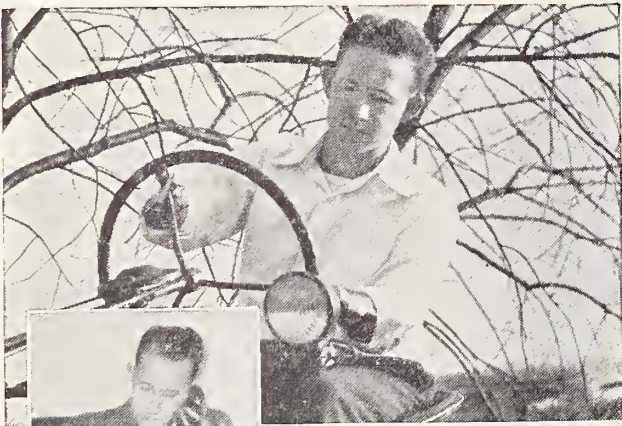
A Little About Some of Your Colleagues	274-296-322-352
American Academy of General Practice, Maine Chapter	31
County Medical Societies:	
New Members	34-65-352-376
Society Notes:	
Androscoggin	62-242-320
Aroostook	374
Cumberland	32-62
Franklin	64-242
Hancock	64-104-128-160-350-374
Kennebec	34-64-104-128-160-180-242-350-374
Knox	34-180
Lincoln-Sagadahoc	350
Oxford	350
Penobscot	352
Piscataquis	104-243-320
Somerset	296
Waldo	180-243-320
Washington	106-128-243-320-376
York	65
Executive Secretary (Perhaps You Hadn't Noticed)	236
Hospital Notes:	
Franklin County Memorial Hospital	243
Mercy Hospital, Portland	349
Thayer Hospital, Waterville	349
Maine Board Registration of Medicine:	
Physicians Licensed to Practice in Maine	34-130-299
Maine General Hospital Issue, Foreword to	249
Maine Medical Association:	
Amendments to By-Laws, Proposed	157
Annual Reports:	
Committees, Special:	
Amy W. Pinkham Trust Fund	185
Arthritis	188
Blood Tranfusions	186
Conservation of Vision	185
Diabetes	188
Health Insurance	186

	Page
Medical School	197
Mental Health	188
National Education	188
Tuberculosis	185
Veterans' Affairs	186
Committees, Standing:	
Legislative	183
Medical Education and Hospitals	184
Public Relations	183
Rural Health	183
Council:	
1st District (Eugene H. Drake)	182
2nd District (James A. MacDougall)	182
3rd District (Robert W. Belknap)	182
5th District (Raymond E. Weymouth)	182
6th District (Norman H. Nickerson)	182
Delegate, American Medical Association	103
Necrologist (In Memoriam)	179
Secretary-Treasurer	197
Treasurer (Annual Audit)	244
Annual Session:	
Art-Hobby Exhibit	237
Commercial Exhibit	195
Councilors Elected:	
1st District, William F. Mahaney	233-235
2nd District, Currier C. Weymouth	233-235
Chairman, Norman H. Nickerson	233
Delegates:	
County Medical Societies	194
Out of State	195
Golf Tournament	237
Program	158-189
Budget, 1951-1952	234
Clinical Session Program	317
Committees, 1951-1952:	

	Page
Special	239
Standing	238
Honorary Members (Fifty-Year Service Medals, Five- and Ten-Year Bars)	191
Past Presidents	200
President, 1951-1952, C. Harold Jameson	231-232
President-elect, Eugene H. Drake	233-235
Presidential Notations	236-293-348
Roster (May 31, 1951):	
Alphabetical List	206
County List	200
Malpractice Insurance, Herbert E. Locke, Counsel	272
News and Notes	34-66-107-130-180-276-299-324-353-377
Woman's Auxiliary:	
Atlantic City Meeting	106-130-160
Officers, 1951-1952	322
Program, Annual Meeting	193
Program, Fall Meeting	319

Necrologies

Call, Ernest V. (Lewiston)	323
Carter, Frederick R. (South Portland)	295
Clarke, Raymond W. (Ellsworth)	179
Comeau, Wilfrid J. (Bangor)	353
Dore, Guy E. (Guilford)	323
Frohock, Horatio W. (Rockland)	178
Gumprecht, Walter R. (Bangor)	179
Jackson, Calvin F. (War, West Virginia)	273
Leslie, Frank E. (Portland)	177
Milliken, Walter S. (Madison)	177
Robinson, Edward F. (Falmouth)	178
Smith, William W. (Ogunquit)	179
Tweedie, Hedley V. (Rockland)	178



Artificial Arms Return
Wearer to Normal Life

Dwight McGee of Lancaster, Ohio, wearing two Hanger Arms, can write, shave, use a knife and fork, drive an automobile, and says he can do about anything an ordinary person can do. Hanger Arms are custom-made to fit the wearer's stump and his particular daily needs, and are carefully fitted by experienced Hanger fitters. Arms can be furnished with cosmetic or mechanical hand and hook.

HANGER ARTIFICIAL LIMBS
441 STUART STREET
BOSTON 16, MASS.

ACCIDENT - HOSPITAL - SICKNESS
INSURANCE

For Physicians, Surgeons, Dentists Exclusively



\$5,000.00 accidental death	\$8.00
<i>\$25.00 weekly indemnity, accident and sickness</i>	Quarterly
\$10,000.00 accidental death	\$16.00
<i>\$50.00 weekly indemnity, accident and sickness</i>	Quarterly
\$15,000.00 accidental death	\$24.00
<i>\$75.00 weekly indemnity, accident and sickness</i>	Quarterly
\$20,000.00 accidental death	\$32.00
<i>\$100.00 weekly indemnity, accident and sickness</i>	Quarterly
Cost has never exceeded amounts shown	
Also Hospital Policies for Members, Wives and Children at Small Additional Cost	

85¢ out of each \$1.00 gross income used for
members' benefit

\$4,000,000.00 **\$17,000,000.00**
INVESTED ASSETS **PAID FOR CLAIMS**
\$200,000.00 deposited with State of Nebraska for protection of our members.
Disability need not be incurred in line of duty—benefits from the beginning day of disability
PHYSICIANS CASUALTY ASSOCIATION
PHYSICIANS HEALTH ASSOCIATION
49 years under the same management
400 FIRST NAT. BANK BLDG., OMAHA 2, NEB.

UNIVERSITY OF CALIFORNIA
Medical Center Library

THIS BOOK IS DUE ON THE LAST DATE STAMPED BELOW

Books not returned on time are subject to a fine of 50c per volume after the third day overdue, increasing to \$1.00 per volume after the sixth day. Books not in demand may be renewed if application is made before expiration of loan period.

<p>JUN 7 1954</p> <p>FEB 2 1955</p> <p>7</p> <p>JUN 7 1956</p> <p>7 DAY RETURNED OCT 25 1960 OCT 19 1960</p>		
--	--	--

51

86649

